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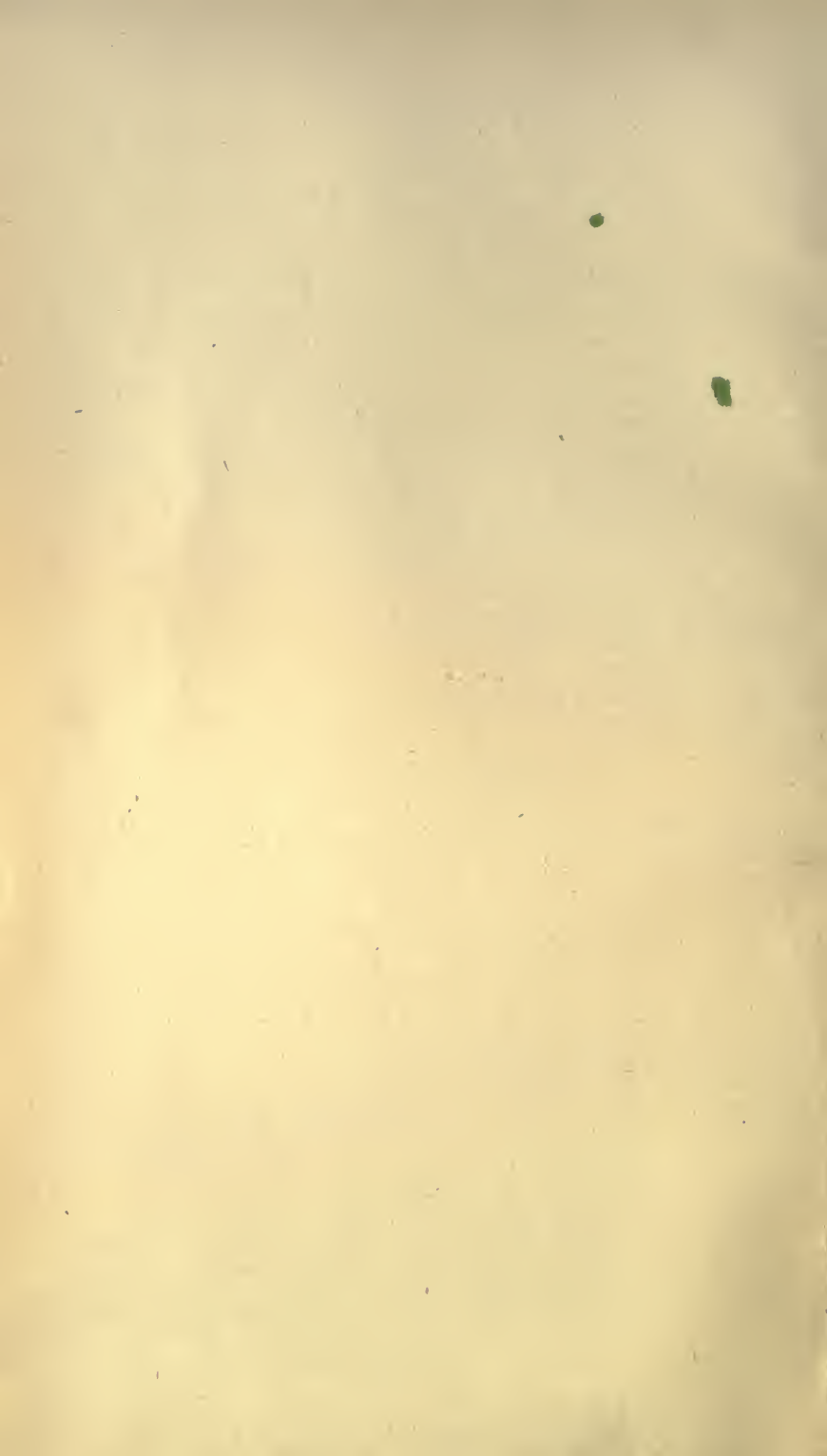
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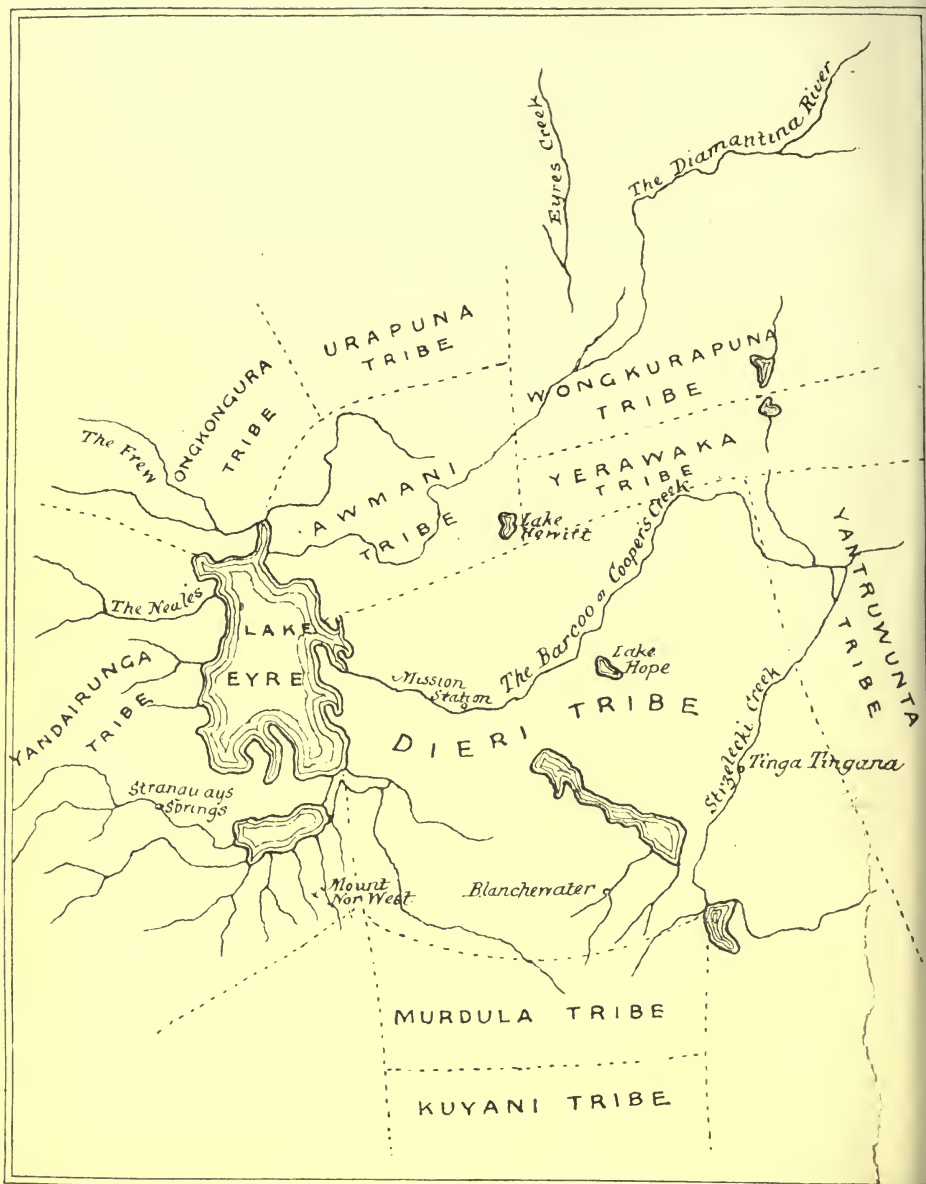
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THE JOURNAL
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FEBRUARY 11TH, 1890.

J. G. GARSON, Esq., M.D., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the ANTHROPOLOGICAL SOCIETY OF PARIS.—La Société, l'École et le Laboratoire d'Anthropologie de Paris à l'Exposition Universelle de 1889.

From the UNITED STATES GEOLOGICAL SURVEY.—Monographs XIII, XIV. Bulletins 48-53. Archaeology of Ohio. By M. C. Read.

From the MUSEUM OF GENERAL AND LOCAL ARCHÆOLOGY (Cambridge).—Fifth Annual Report of the Antiquarian Committee to the Senate, November 26th, 1889.

From PROFESSOR AGASSIZ.—Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College for 1888-89.

From the AUTHORS.—The New Dock Excavation at Southampton. By T. W. Shore, F.G.S., F.C.S., and J. W. Elwes.

— Eskimo Tales and Songs. By H. Rink and F. Boas.

- From the AUTHOR.—The Central Eskimo. By Franz Boas.
 — The Indians of British Columbia. By Franz Boas, Ph.D.
 — The Houses of the Kwakiutl Indians, British Columbia. By Dr. Franz Boas.
 — Notes on the Snanaimuq. By Dr. Franz Boas.
 — On Some Recent Subsidences near Stifford, Essex. By T. V. Holmes, F.G.S., M.A.I.
 — The History of Human Marriage. Part I. By Edward Westermarck.
 — Les Premières Populations de l'Europe. Par le Marquis de Nadaillac.
 — Un Viaggio a Nías. Di Elio Modigliani.
 — Die Menschenrassen Europa's und Asien's. Von Dr. J. Kollmann.
 — Sulla Statura degli Italiani. Per il Dottor Ridolfo Livi.
 — L'Indice Cefalico degli Italiani. Per il Dott. Ridolfo Livi.
 — Die Grosshirnrinde in ihren Stellung zur Speichelsecretion. Von Gisbert Fluck.
- From the BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—De Derde Javaansche Successie—Oorlog (1746–1755). Door P. J. F. Louw.
 — Tijdschrift voor Indische Taal-, Land- en Volkenkunde. Deel xxxiii. Afl. 2.
 — Notulen van de Algemeene en Bestuurs-Vergaderingen. Deel xxvii, Afl. 2; Register, 1879–1888.
- From the PUBLIC FREE LIBRARIES COMMITTEE, MANCHESTER.—Thirty-seventh Annual Report, 1888–9.
- From the SOCIÉTÉ DE GÉOGRAPHIE DE LISBONNE.—L'Incident Anglo-Portugais.
 — Importation abusive en Afrique par des sujets Anglais d'armes perfectionnées. Protestation présentée au Gouvernement Portugais par la Société de Géographie de Lisbonne.
- From the ROYAL SCOTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. Nos. 1, 2.
- From the ESSEX FIELD CLUB.—The Essex Naturalist. Vol. iii. Nos. 7–9.
- From the K. K. AKADEMIE DER WISSENSCHAFTEN, WIEN.—Sitzungsberichte, philos.-histor. Classe. Band 117, 118; math.-naturw. Classe, I Abthlg., 1888, Nos. 6–10, 1889, Nos. 1–3; II Abthlg., a. 1888, Nos. 8–10, 1889, Nos. 1–3; b. 1888, Nos. 8–10, 1889, Nos. 1–3; III Abthlg. 1888, Nos. 7–10, 1889, Nos. 1–4; Register No. 12. Almanach, 1889.
- From KONGL. VITTERHETS HISTORIE OCH ANTIQVITETS AKADEMIEN.—Antiqvarisk Tidskrift för Sverige. Del. x. Häft 5.
- From the AKADEMIE DES SCIENCES DE CRACOVIE.—Bulletin International, 1889. Nos. 8–10.
- From the ACADEMY.—Boletin de la Academia Nacional de Ciencias en Córdoba. Tomo xi. Entrega 3a.
- From the ASSOCIATION.—Journal of the East India Association. Vol. xxii. No. 1.

- From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. xi. No. 5.
- Journal of the Royal Historical and Archæological Association of Ireland. Vol. ix. No. 80.
- From the INSTITUTE.—Proceedings of the Canadian Institute. Vol. vii. Fas. 1.
- From the UNIVERSITY.—Journal of the College of Science, Imperial University, Japan. Vol. iii. Part 3.
- From the SOCIETY.—Proceedings of the Society of Biblical Archæology. Vol. xii. Part 2.
- Proceedings of the Royal Geographical Society. Vol. xii. Nos. 1, 2.
- Proceedings of the Royal Society. Nos. 284–286.
- Proceedings of the Asiatic Society of Bengal. 1889. Nos. 1–6.
- Journal of the Asiatic Society of Bengal. Vol. lviii. Nos. 288–290; special number on “The Modern Vernacular Literature of Hindustan.” By George A. Grierson, B.A., B.C.S.
- Journal of the Society of Arts. Nos. 1934–1942.
- Proceedings of the Philosophical Society of Glasgow. 1888–89.
- Bulletin de la Société Impériale des Naturalistes de Moscou. 1889. No. 2.
- Boletim da Sociedade de Geographia de Lisboa. 8a Serie. Nos. 7–8.
- Mittheilungen der Anthropologischen Gesellschaft in Wien. xix Band. Heft 3, 4.
- Arhiva Societății Științifice și Literare din Iași. 1889. Nos. 2, 3.
- From the EDITOR.—Journal of Mental Science. No. 116.
- Nature. Nos. 1050–1058.
- Science. Nos. 354–364.
- Revue Scientifique. Tom. xlv. Nos. 24–26. Tom. xlv. Nos. 1–6.
- Bullettino di Paletnologia Italiana. Tom. v. No. 9 a 11.

The following Paper was read by the Author:—

CHARACTERISTIC SURVIVALS *of the CELTS in HAMPSHIRE.*

By T. W. SHORE, F.G.S.

NOTWITHSTANDING the successive waves of conquest which have passed over the southern parts of England since the time when what is now called Hampshire was inhabited by Celtic people, the remains of these people, perhaps the earliest of its inhabitants we can distinctly trace, with the exception of the Palæolithic men, can be recognised amidst much that bears the marks of the Romans, Saxons, and Norsemen.

We have remains of the labour of the Celts of Hampshire, in the great earthworks they threw up for their castles of refuge, the so-called British camps, to which I have alluded in a previous paper read before this Institute.¹

We can follow at the present day some of the chief lines of communication between the Celtic tribes of that county, for these lines of road must have crossed the rivers at their natural fords, which still exist, and which with other geological considerations determined the courses of these roads.

We can see that the general distribution of the Celtic population must have been determined by the courses of the rivers and the direction of the river valleys, these being the areas best adapted for reliable supplies of food, and being separated from other similar areas by forest land which has only been cleared within historic time.

Occasionally we find the remains of old British canoes made from trunks of trees, charred in the interior for facility in working, and chipped and fashioned by rude tools.

We find in the peat, or a little below the surface of some of our cultivated fields, the stone and bronze implements and weapons used by the people of Hampshire in the British Neolithic and Bronze ages, and as these implements of stone and bronze are found in similar situations, no hard and fast line can be drawn between the periods of their use.

In the round huts of the charcoal-burners of the New Forest, of which a few still exist, we have, I think, a survival to the present day, in form, of the huts which were common in the Celtic period.

In the agricultural operation of chalking or marling heavy clay-land, by spreading chalk over it, we find the survival of a practice which Pliny tells us was in use in Britain in his time. Some of the largest chalk pits or quarries of Hampshire are so large, in comparison with the probable annual quantity of chalk which could have been taken from them and used in this way, that some of these pits in all probability mark the places where the old British people of this county first began to dig chalk.

As Romano-British remains and Roman coins have been found in or quite close to a considerable number of old villages in Hampshire, these villages as habitable sites must be as old as the Romano-British period.

Some of the industries of the Celtic period appear to have survived in Hampshire to the present day, such as that of osier working or basket-making.

¹ "The Distribution and Density of the old British population of Hampshire," "Journ. Anthropol. Inst.," vol. xviii, No. 4.

The Hampshire Celts were not without their trade and commerce, which appears to have been carried on between the great natural port of Southampton Water and the Solent, and the opposite coast of France. The trade which we can trace was the export trade in tin by the Greek merchants of Marseilles, a rival trade to that of the Phœnicians, and carried on across Gaul. An ingot of tin has been dredged up between Lepe and Gurnard Bay. The ancient use of tin to mix with copper in the manufacture of bronze, must have been understood by the southern Celts as early as the British Bronze age. The tin trade survived at Southampton, where we still have the name remaining of "the tin shore," and also the old Stannaries house, until the 15th century. As this trade could scarcely have been revived again, at a port so far distant from the tin mines of Cornwall and Devon, if it had once died out, it was in all probability a continuous trade, a survival of the old British traffic until the time of the Venetians, whose records show that they shipped tin at Southampton.

The iron which was used by the Celts of Hampshire was probably a native production and manufactured on the spot. Cæsar tells us that "iron is produced in the maritime parts of Britain, but the quantity of it is small." I have elsewhere¹ shown that the early manufacture of iron was carried on in Hampshire, where the sites of some of the old iron forges can be identified, as well as in Sussex and Kent. The chief Hampshire ironstone was derived from the beds of the Bracklesham age, in which it occurs in the form of nodules, and along the shores of the Solent this stone being rich in iron is even yet collected for shipment.

Another Celtic industry in Hampshire appears to have been that of salt-making at Hayling Island, and perhaps at other places on the coast. There can be little doubt that Hayling—anciently spelt Halinge—has derived its name from connection with salt-making, and from the Celtic word *hal*, salt. The salt works which still exist there, are in all probability an example of a survival of a Celtic industry to the present day. The salt of Britain must have been of some repute, as early as Romano-British time, for it is mentioned by St. Ambrose, who wrote in the fourth century.

Along the shores of Southampton Water various discoveries have from time to time been made of sites, which were evidently occupied as late as Romano-British time, and probably earlier, on account of their suitability both for defensive dwelling sites,

¹ "Old Ironworks in Hampshire," "The Antiquary," May, 1887, No. 89, vol. xv.

and for obtaining supplies of fish. These sites were commonly natural hillocks, protected on one or more sides by marshes, or inlets covered by the tidal water. On one such site protected by a marshy inlet on two sides, and on which the residence of the Superintendent of the Military Lunatic Asylum at Netley is now built, a number of Romano-British coins and many other remains of that date were found in digging for the foundations of the present buildings. Similar hillock sites have been found higher up at Woolston and Freemantle. Southampton Water appears to have been a favourite fishing water of the Celts from Neolithic time onwards. A fine neolithic weapon found near the shore at Freemantle has lately been added to the museum of the Hartley Institution. Relics of the Bronze age have also been found on the gravel terraces of the tidal part of the Itchen. At the present time the Southampton Water is frequented by thirty species of fish, and they were in all probability much more abundant in Celtic time than at present. The remains which have been found along the shores of this estuary, show that the Celts of this part of Hampshire, whether partly migratory or not, were probably acquainted with the migrations of the fish, and at least frequented the locality during the fishing seasons.

The early inhabitants of Hampshire appear to me to have possessed a system of coast defence. The remains of some of these defences still exist, and others can be traced. These defences must, I think, have been constructed to guard against enemies from the opposite side of the channel, rather than from British coast marauders. If so, they must either be the defences which the Belgæ broke through in their conquest and settlement in Hampshire, or more probably their own later defensive works, for the Belgæ were the last invaders of whom we have any trace before the time of the Romans. From its geographical configuration the coast of Hampshire would be convenient for attack, for a large offensive naval force could find shelter in the Solent and its harbours. The defences consist of earthworks, and appear to have been constructed to guard the chief inlets of the sea and entrances to the rivers.

There is evidence that the early population of Hampshire was mainly distributed along the river valleys, and their dry upper continuations.

The entrance to the Avon was guarded by the peninsular earthwork of Hengistbury, which consisted of a ditch and inner bank across the narrow neck of land connecting Hengistbury Head with the land to the westward. Although diminished somewhat in length by coast erosion, a great part of this entrenchment still remains.

The entrance to the country above the Lymington river was guarded by an earthwork now known as Buckland Rings, but which was I think known previously, and as late as the time of Richard II, by the name of Iernesburgh.

The entrance to the Beaulieu river appears to have been guarded by an earthwork at Exbury, of which the name only now remains.

The passage up the river Hamble appears to have been defended on both sides of it at Bursledon, and at Sarisbury at which latter place some traces remain.

The passage up the Itchen was guarded by an earthwork strongly placed on a river cliff known as Rockdone, and later as Bevois Mount, destroyed since the beginning of this century. There is reason for believing that the peninsular site on which the ancient part of Southampton is built between the two rivers Itchen and Test, was also a fortified position of the early inhabitants of Hampshire. The double ditches on the north and east sides of the town, dug deep enough to admit the flow and ebb of the tide, and which existed in their ancient condition as late as the sixteenth century, must have made this a strong defensive site, and from what we know of the other peninsular defensive works of the Celts in this county, we may, I think, conclude that the early inhabitants of Hampshire would not neglect this site, the most important of them all.

On the Test side of Southampton there is a trace of an earthwork at Bury Farm, Eling, where Romano-British remains have been found. The passage up the Test and the country on its western bank was protected by an entrenched earthwork, part of which still remains, and which is known as Tatchbury Mount. Close to the limit of the tidal flow in the river on the opposite side near Nursling, there yet remains a small part of what appears to have been another defensive work, but now almost destroyed by work in the construction of the old canal, and the railway which took its place. From this site I have obtained some early Roman coins and many articles of Romano-British date, including teeth of horses, probably from animals sacrificed at Celtic cremations. Tacitus tells us that the Belgæ burnt the bodies of their chiefs with fire, and sacrificed horses.

The passage up the Gosport creek into the country between Portsmouth Harbour and Southampton Water, was defended by an earthwork at Bury, a part of Alverstoke.

A complete fortification, which still exists on Hayling Island, known as Tunorbury, is situated close to the western entrance to Chichester Harbour, and if we pass beyond the eastern limit of Hampshire, we find what was formerly the entrance to

Pagham harbour guarded by a British earthwork, within which the mediæval church of Selsea was built and yet remains.

Such a chain of fortresses proves, I think, that the Celtic tribes of Hampshire were organised for coast defence.

We have in Hampshire two classes of early earthworks in the form of mounds, viz., first those which, whether thrown up by the Saxons or not, were used by them as burh mounds, and secondly those mounds concerning which there is no record or trace that they were ever used by the Saxons.

Of those which were used as Saxon burhs the great mounds on which the keeps of Carisbrook and Christ Church Castles were built, and which still exist, and the great mound on which the keep of Southampton Castle was built, are good examples. The questions who were the mound builders, and were these mound builders of different ages, and whether the Saxons utilised existing Celtic mounds, are interesting considerations. The evidence which Hampshire affords shows that there were Celtic mound-builders. On a high watershed between two dry upper valleys which lower down become the sources of streams flowing into the Test and Itchen, we have a remarkable mound known as Farley Mount. From its size it appears to be too large to have been constructed as an ordinary tumulus. It is situated on one of the highest positions of the watershed between the Test and Itchen, and has a ring-shaped entrenchment at some distance round it. Its use or degradation in the early part of last century, as the burial place for a noted horse, has not destroyed its Celtic features.

The mounds at Carisbrook, Christ Church, and Southampton may also have been surrounded by some outer ditch and bank before the keeps of the Norman Castles were built on them. As the fortification at Carisbrook is as old as Celtic time, the great mound there may be as old as its earliest entrenchments.

In the New Forest district we have two remarkable mounds still remaining, of far larger size than the numerous round barrows which still exist within this area. These are the mounds known as Black Bar at Linwood near Ellingham, and another known as the Butts on Bramshaw Plain. Both these great mounds appear to have been dwelling sites, on which huts could be erected. Black Bar is situated in a part of the New Forest which could easily have been converted into a lake by damming up a stream close to it, and the name Linwood confirms the probable former existence here of a small lake. Both these mounds are so remote from fortified places of the Saxon period, as to make it extremely improbable that they were ever used as Saxon defences. Their origin must therefore be ascribed to Celtic mound builders.

The mount at Walhampton, near Lymington, is probably another example of the same kind, and there are remains or traces of similar early mounds at Bevois Mount, Southampton, Wherwell, Cheriton, Burton near Christchurch, Sopley, Rowland's Castle and elsewhere. These early mounds, for the construction of which there does not appear to me to have been any sufficient reason in Saxon time, must I think have been thrown up by an earlier race of people, presumably the Celtic mound-builders of Hampshire.

Some of these early mounds must, I think, have been sites sacred to the Celtic people of this country.

Professor Rhys tells us in his Hibbert lectures on "The Origin and Growth of Religion,"¹ that the Celts of the British Islands had sacred mounds, which were known as the gods' mounds, the god being designated the "chief of the mound," and we are, I think, warranted in concluding that some of the mounds which remain in Hampshire were of this character. The evidence pointing to a fusion of part of the Celtic population of Hampshire with their Saxon conquerors is so strong, that I feel justified in partly basing my argument upon it in reference to Celtic survivals in that county concerning the early mounds. A number of ancient churches in Hampshire are built on artificial mounds. One of these is Corhampton in the valley of the Meon, which has a Saxon church on the mound. The Meon valley was inhabited by a British tribe which had their hill fortress on old Winchester Hill, which towers above this part of the valley, and it was therefore a well peopled area in British time. The mound at Burton, near Christchurch, is flat on the top, and there is a record of an ancient church dedicated to St. Martin, a Gaulish Saint, which stood upon it, and caused the mound to be known as St. Martin's Hill. Higher up the Avon, a somewhat similar artificial mound may be seen on which the church of Sopley stands. Another instance is that of Cheriton, which has a church on an artificial mound occupying the greater part of the present churchyard. Very near to the site of this mound, we find some of the most remarkable of the permanent springs of this branch of the Itchen, which circumstance may be an additional argument in favour of the Celtic origin of the mound, as these springs perhaps fixed the site of the mound as well as that of the village. I have elsewhere shown that the Saxons in Hampshire utilised Celtic earthworks as the defences of their early boroughs,² and I see no reason why they should not also have utilised Celtic mounds

¹ Hibbert Lectures on "The Origin and Growth of Religion," p. 204.

² Paper on "Early Boroughs in Hampshire," "Archæological Review," vol. iv, No. 4, November, 1889.

both for defences and for sacred purposes. If these mounds were sacred sites of the Celts, their sacred character must have survived in Hampshire until the time of Birinus, the Christian missionary to the West Saxons in the seventh century, and we know that the early missionaries in England were instructed to adopt the sacred pagan places as sites for Christian temples, and to substitute Christian festivals for those of pagan origin.¹

Cæsar tells us that the Belgæ worshipped the sun, moon, and fire, and Tacitus says they also worshipped Hertha, or their mother earth, by which he must, I think, have meant to include springs and fountains. Close to the ancient border of Hampshire, which at one time appears to have included Amesbury, is Stonehenge, the most remarkable structure connected with the worship of the sun in Britain. I assume it is now generally allowed, that Stonehenge was intended to be symbolic of sun worship, and whether constructed by the Celts or some other race, the many tumuli which are found near it tend to prove that it was understood and revered by the Celts as a sacred place. The lines denoted by the outlying stones at Stonehenge, point to the direction of sunrise and sunset at the summer and winter solstices. In addition to these festival periods of their year, the Celts appear to have had two other seasons which they held in much reverence, viz., those at the beginning of May and the beginning of November. It is scarcely necessary for me to remind you that the May and November festivals have come down to our time from a very remote antiquity. With the ancient Celtic people, the beginning of May appears to have been the great feast of the sun,² and the beginning of November the time when they commemorated their dead ancestors.

If a line in the form of a tangent is drawn from the northern part of the outer circle of stones at Stonehenge, to the outlying stone known as the Friar's Heel, and is continued, it points to about the east north-east, the line of the May sunrise.

Whatever differences of opinion may prevail concerning the meaning of Stonehenge in relation to other objects with which it is surrounded, there can, I think, be no doubt about these lines of sunrise. It is enough for my purpose in this paper, if it is allowed that Stonehenge was revered by Celtic people and understood by them, to be symbolic of sun worship. The reverence with which it was regarded must have lasted for many generations after the introduction of Christianity, for we find that the barbarous adoration of the sun, moon, fire, fountains and trees was forbidden by special edicts, issued as

¹ Letter of Pope Gregory to Miletus the Abbot.

² Matthew Arnold on "Celtic Literature," p. 61.

late as the time of Edgar in the tenth century, and of Canute in the eleventh, and I think it very probable that its partial destruction may have taken place, under the order of one or other of these kings.

If it is allowed that Stonehenge was venerated by people of the Celtic race as an elaborate symbol of their religious sentiment concerning the sun, it cannot be thought improbable that these same people may have also intended certain other of their works, which have survived to our own day, to have had a symbolic meaning. This was, I think, the case in regard to some of the sites they selected for the tumuli, which they reared to commemorate their dead. I have enumerated more than 300 tumuli which still exist in Hampshire. Tacitus tells us that the Belgæ reared no monuments to their dead, that they adopted cremation, and sacrificed horses at funerals. If he meant that they reared no stone monuments, and did not include the simple mound of earth as a monument, the statement is confirmed by the existing remains. Horses' teeth are still found occasionally on the Celtic burial sites of Hampshire; which makes it certain that they were sacrificed, and nearly all the burial sites of the same people in this county afford evidence of cremation. In two instances, burial places containing many urns filled with cremated matter have been discovered without any tumuli to mark the places, at the time of the discovery, viz., one discovered many years ago near Ryde, and another found in 1888 at Dummer, near Basingstoke. Implements and other articles of bronze, or worked flints of some kind, are commonly found on these burial sites. The existing tumuli are of various shapes, and similar to those on Salisbury Plain and in other parts of Wiltshire, described by Sir Richard Colt Hoare. The usual mode of interment in Hampshire was by the cremation of the body and the preservation of the ashes in earthenware vessels of various sizes, which were buried with their mouths downwards, and commonly placed on rudely constructed floors of flints. In some instances, the urns containing the cremated ashes are larger vessels than the quantity of ashes required, and the mode of interment adopted in such cases was to place clay at the bottom and round the sides of the vessel, then to put in the ashes and fragments of bone, to cover the mouth of the vessel with more clay, and to place it on a floor of flints in an inverted position two or three feet below the surface of the earth. This was the mode of interment at Dummer, from which site thirteen urns were removed in 1888. Some of these vessels were so large that they appear to have been previously used for domestic purposes, perhaps used for holding corn or flour from the hand-mills or querns. One of

the largest of these vessels is in the museum of the Hartley Institution.

In three instances which have come under my notice, the remains found on or near these burial places, have included skulls or parts of skulls which show marks of violence, as if slaves were sometimes killed at these interments. The museum at Newport, in the Isle of Wight, and the museum of the Hartley Institution contain skull bones which exhibit these marks of violence.

The tumuli which remain are most abundant on the open heaths of the New Forest, and on other heaths and downs in various parts of the county. Many others have been destroyed by agricultural operations since the date of the inclosure of the downs and other common pastures.

Although cremation appears to have been the usual practice among the early inhabitants of Hampshire, some examples of the burial of the body in a sitting posture in roughly formed cists, cut out of the chalk, have been found. In one such instance in which I secured the bones for the museum of the Hartley Institution, I was careful to ascertain that the flexured body was deposited so that the face was placed as if looking towards the north-east, or east north-east.

Many of the Celtic barrows in Hampshire are on the watersheds. A good example is that at Crawley Clump, where you may stand near the tumuli there, and look north and south, and see that the site is on high ground close to the dividing line of the water drainage between two branches of the Test. Here also you may see that this site was a burial place for men who reared long barrows to commemorate their dead, as well as for those who reared round barrows, for both are found within a short distance of each other. In Hampshire, Celtic tumuli are also commonly found just above the permanent water sources, and in some instances just above the occasional water sources. These occasional water sources are those which give rise to chalk bourns, which are a marked feature in the physical geology of chalk districts. The bourn is a stream which does not always flow. Usually it is dry during the summer and autumn months, depending on the rainfall. When the line of saturation rises sufficiently high in the chalk, then the bourn spring begins to flow. If the rainfall has been only moderate in amount, the lower springs flow only, but if the rainfall has been great, the line of saturation rises, and causes the water to flow out from springs higher up the bourn, and in very wet seasons much higher up. These phenomena must have been as well known to the earliest inhabitants of the chalk valleys as to ourselves, whatever may have been their opinion on their

cause. Whether they reasoned about them or not, they must have known the facts. That these chalk bourns were in early time more generally fed by springs higher up the valleys than the present permanent springs owing to the greater area of forest land, and the consequent greater humidity is, I think, certain. The clearing of the forest land must have affected the height of the permanent springs, but there must always have been occasional water sources higher up the valleys, which would be active only in very wet seasons. Some of these occasional springs flow only once in ten, or in as many as twenty years, and in some remarkable instances the sites of these occasional springs in Hampshire were chosen by the Celts of that part of England as burial sites. This is the case at the Seven Barrows between Whitchurch and Newbury. For many years in succession you may pass through the little village of Litchfield, near these barrows, and see that the water course along the village street is quite dry, but occasionally after long intervals, it is a roaring little torrent, and its highest occasional source is close to the Seven Barrows. I cannot think that the selection of this remarkable burial site could have been accidental, and have had no reference to the occasional flow of the stream. The higher chalk area to the north of the Seven Barrows, which is the collecting area for the water that feeds these springs in very wet seasons, is of such a geological character as must have kept it an open downland in prehistoric time, as it is at the present day, for it is part of the natural open land known as the Clere district, as early as Anglo-Saxon time. If, therefore, we may conclude that the Seven Barrows were thrown up on this site, close to the occasional water sources of the bourn, by the Celts of Hampshire, with a knowledge of the peculiarity of these springs, we may reasonably inquire whether they could have had any motive for selecting such a remarkable spot. We have in Hampshire three groups of tumuli known in each case as the Seven Barrows. In addition to those I have mentioned, there is a group of Seven Barrows to be seen about two miles west of Stockbridge, and this group is near the head of one of the small lateral valleys of the drainage system of the Wallop stream, a branch of the Test. There is also a group of tumuli known as the Seven Barrows in the parish of South Tidworth, on the north-west border of the county, and not far from the great bourn stream known as the Collingbourn, one of the most remarkable mole streams in England, and into which when it is a bourn, water flows from the lateral valleys, near the head of one of which the Seven Barrows of South Tidworth are situated. With the significance of groups of tumuli, seven in number, I have no

special concern in this paper, but the number is remarkable. There is also a group of tumuli known as the Seven Barrows near Lambourn, in Berkshire. There also appears to be the remains of a group of barrows near Bramdean and Hinton Ampner in Hampshire, near to the site of a bourn spring which is one of the occasional sources of the Itchen.

In view of these several circumstances, it appears to me that the Celts of Hampshire in choosing these occasional water sources for burial sites, wished to express thereby some conviction of their own. Burial by water sources, whether permanent or occasional springs, must, I think, have been intended to have been symbolic of life. The meaning of the words "fountains of living water" and similar expressions, appear to me to have been as well understood among the Aryan nations generally, as among the Hebrews in particular, and the pagan worship of fountains and wells which survived in England in a modified form until the middle ages, if indeed it is even yet extinct, sufficiently shows how deeply rooted this reverence for water sources really was.

The springs or fountains of water near the Seven Barrows in Hampshire will certainly flow again as they did in the time of the Celts, but we cannot say when, nor exactly how they will flow, nor could they; and it appears to me that this burial place must have been selected by them to have been symbolic of a new but unknown life, and that the student of anthropology may, in this group of barrows and springs, recognize a symbol intended by these Celts to express their belief in a new life, but concerning which they knew neither its time nor its nature.

This view of the religion of the ancient Celts is partly confirmed in the address of Lucan (who wrote about A.D. 65) to the British people, left by the Roman Civil War to their own devices, in which he says, "Ye too, ye bards, who by your praises perpetuate the memory of the fallen brave, without hindrance poured forth your strain, and ye, ye Druids, now that the sword was removed, began once more your barbaric rites and weird solemnities. To you only is given knowledge and ignorance (whichever it be) of the gods and the powers of heaven. Your dwelling is in the lone heart of the forest; from you we learn that the bourn of man's ghost is not the senseless grave, nor the pale realm of the monarch below; in another world his spirit survives still; death, if your lore be true, is but the passage to enduring life."¹

Such a quotation from a contemporary writer helps to explain the reason for burial places being chosen above or near water sources, whether permanent or occasional springs. If there is

¹ Quoted by Matthew Arnold in "Celtic Literature," p. 51.

any meaning at all in these burial places near occasional springs, then the churchyard at Hambledon may have been a similar Celtic burial site. In this part of Hampshire a bourn is called a lavant, and after long intervals when a lavant rises at Hambledon, some of the springs rise from, or quite close to the churchyard itself. The church here is one of the oldest in the county, and contains undoubted Saxon work, so that this spot must have been a burial place beyond the range of history.

There can be little doubt that some of the mediæval holy wells of this county derived their character from the reverence with which they were regarded in remote ages. Some of these sacred water sources are springs, in some instances sluggish springs issuing from the tertiary formations, some are chalk springs, and some are ordinary wells, but in the dry valleys of a chalk country, many wells after long intervals, overflow and give rise to streams in very wet seasons. Some of these springs were anciently known as wishing wells, and the wishing customs connected with them must, I think, have had their origin in pagan time. Some were visited down to comparatively recent time for curative purposes, more especially for complaints of the eyes. In some instances of this kind I have ascertained that the water at the present time is more or less chalybeate.

At Itchenswell and Maplederwell, springs rise close to the churchyards, and these place-names are partly Celtic. A sluggish spring which anciently had a reputed curative property in the folklore of Hampshire, is situated close to the old church of Botley, and the stream at Holybourne, near Alton, rises from the churchyard itself.

These examples appear to me to be instances in which we can trace the survival of the Celtic reverence for water sources. This reverence for water sources, and the Celtic water-names connected with springs and streams which abound in Hampshire, are among the most enduring remains of that people. Whatever may have been the exact significance of the many syllabic words used by the Celts to denote water in some state or other, the many examples of these water names which still survive, show that the language of the people of Hampshire after the Saxon conquest could not have been suddenly changed.

Of the syllabic water-words *ax*, *ex*, *ox*, we have examples at Axford, Exbury, Droxford, Oxenbourn, Oxney, Oxlease, and other places.

Of the water-syllables *an* and *en*, we have examples in the names, Andover, Andwell, Ampfield (anciently Anfield), Anmore, Enham, Hinton (anciently Henton, and still so pronounced), and Hantune, one of the ancient names of Southampton.

Of the water-word *dover* or *dufr*, we have examples in the names Andover, Candover, Micheldever, and others.

Another group of water-names are those recorded in Doomsday Book, *esse*, or words compounded of *esse*, and now in some instances pronounced ash, in others hus, or hurst. Nearly all the principal streams in this county have some place-names near their springs into which the word now pronounced ash enters, and which probably is derived from the Celtic water-word *ache*.

The sites of some of our prehistoric lakes or meres are denoted by the existence of the syllabic water-names *lin* or *lun*, as Lindford, Linwood, Lyndhurst, and London. We have about twelve insignificant places in Hampshire which still retain the Celtic name, London, and the surroundings of some of these still show traces of fortified positions near water.

The Celtic marsh word survives in the names of Romsey and Rumbridge, whose surroundings bear out their ancient names.

The names of the chief rivers of Hampshire are those which have come down to us from Celtic time, Itchen, anciently Icenan, Test, anciently Terstan, Avon, Loddon, and Wey. We have two Avons, two Loddons, two Weys, two Yars, one Oure, and one Stour.

Our place and district names which have come down from Celtic sources are numerous.

We can still find in Hampshire traces of the mythology of the Celts, and traces of their mythological heroes. Close to the northern border of the county is Ludgershall, which has a Lammas fair corresponding to the Lugnassad fairs at Lammas time held in Ireland, and which Professor Rhys has shown¹ had their origin in the early assemblies at this time of the year in honour of Lug, or the Sun. In the Summerhaugh revels which were held at St. Mary Bourn down to a comparatively late period, on or about old Midsummer day, we have a record of a late survival of the pagan midsummer festival. In the folk lore which has scarcely yet quite disappeared, about herbs under the sun, and herbs under the moon, we may perhaps see the last traces of the worship of celestial bodies, and perhaps in the personified form of Apollo and Diana. Of Puck or Pooka, the Celtic evil fairy, Hampshire retains many surviving traces in the place-names Puck pits, Pook-lane, Puck, Pokesdown, Pucks Hill, Puckaster, Puckhouse and others, and also in the names Puck-needle, and Pixies. Of the Celtic hero, Ambrosius, or Emrys, we have many traditions, and the place-names Amesbury, Ambrose Hole, Emery Down, and Emer, appear to have been derived from him. The

¹ Hibbert Lectures on "The Origin and Growth of Religion," pp. 411-2.

traditions of Merlin and Arthur survive at Winchester, where a mediæval round table hangs in the County Hall.

The blending of races which must have taken place in Hampshire appears to have been the cause of many of the Celtic survivals in that county, for certain parts of the religion, mythology, customs, communal organization, and part of the language of the Celts, appear to have become mixed with and engrafted upon the religion, mythology, customs, communal organization, and language of the Saxons. In no other way can I account for much that was characteristic of the Celts surviving until the present day, or for many Celtic customs lingering until the middle ages. I have already alluded to the May-day sunrise and the Stonehenge lines. This May-day sunrise was certainly revered in mediæval Christian time as well as in pagan Celtic time, for the line of about 20° north of east is the line of orientation of a large number of the oldest churches in Hampshire, and of many in other counties. It is a common orientation among the oldest churches of Hampshire, in which county there are as many as seventy examples of it. I cannot explain this on any other ground than the survival of a reverence for the May sunrise from Celtic pagan time, to Saxon Christian time, and under a modification to a later date. It appears to me that as there is evidence of the survival of part of the Celtic people, it is not surprising to find that traces of their May-day customs have survived also.

It is of course possible that in this common line of orientation of many old churches, we may see all that remains of one of the customs of the old British Christianity which existed before the coming of the Saxons.

I have already mentioned, that we find two different kinds of burial were adopted by the early inhabitants of Hampshire, a circumstance pointing to different races of people. Also, we certainly have traces of two branches of the Celtic race, for a considerable number of Gaelic words survive among the place names of Hampshire, as well as a large number apparently of Cymric origin. Such Gaelic names as *ow*, a river; *eannagh*, a marsh; *knock*, a hill; *loch*, a pool or lake; *larrock*, a house site; and others are found in Hampshire, and are common in Ireland. We have one place name, Dublin, which means a black pool, near a marshy part of the Test, and which place in Celtic time probably had this character.

The traditions of Merlin and especially those connected with the origin of Stonehenge, are much the same as the Irish legends and traditions of Kildare, and of Stonehenge having been removed from Kildare. The Irish historical traditions concerning the Belgæ and their invasion of part of Ireland are well known, and

point to some connexion between these Belgæ and the Irish Gaels. The similarity in the traditions of a later age are curious.

The legend of St. Patrick and the snakes, finds its parallel in a similar legend of St. Birinus, the missionary to the West Saxons, and there is a tradition of the earliest abbess of Romsey being an Irish nun named Merwenna, a disciple of St. Patrick.

Such names as Iernesburgh near Lymington, and Clonmanron as a Celtic name for Christchurch, and by which it was known to early foreign traders, are Irish names rather than Cymric.

In the Irish raths we find a parallel to the Celtic castles of refuge which still remain in Hampshire, the earthworks of the Belgæ, spoken of in the Triads as the "refuge-taking men of Galedin."

The seven old churches in a group at Clonmacnois in Ireland find their parallel in the traditionary accounts of similar groups of churches formerly existing at Christ Church and Winchester.

The late Dr. Guest expressed his opinion that the Belgic dialect belongs to the Gaelic rather than the Cymric branch of the Celts.

As we find among the characteristic survivals of the Celts in Hampshire, so many traces of the Gaelic branch of that race, this appears to me to indicate that there must have been either in succession or contemporaneously both Cymric and Gaelic tribes in that part of England.

DISCUSSION.

Mr. T. V. HOLMES remarked that on the last occasion Mr. Shore had discussed the ancient camps of Hampshire. On this he had treated, among other matters, of the large mounds which were not barrows, but had evidently been intended for other purposes. It seemed to him that Mr. Shore's suggestion that they had been made to serve some religious use was a very probable explanation. For while a camp was evidently well-suited to be a refuge to the women and children, the flocks and herds of an invaded tribe, a mound even as large as Silbury, or as those on which so many mediæval keeps had been erected in East Anglia, could hardly have been useful in that way. Besides, many of these mounds, as Mr. Shore had shown, were on low ground, like Silbury. That huge mound was in the valley of the Kennet, close to the river, and considering the sanctity attached to places at which bournes occasionally appeared, it seemed probable that Silbury, with other mounds similarly situated, were raised at spots thought peculiarly favourable for invoking the deity of the stream.

Mr. A. L. LEWIS said the point brought forward by the author about the May-day sunrise was certainly new to him, and if Stonehenge were the only instance, he would regard it as an accidental coinci-

dence, because there was nothing on the north side of Stonehenge to mark any definite point of observation; but, according to details supplied to him by Admiral Tremlett, the alignments of Menec in Brittany ran in a direction 30° north of east from an incomplete circle, and those of Kerlescan 26° north of east from the open side of an enclosure which formed three sides of a square, and these were very near the bearing spoken of by Mr. Shore. May-day had always been observed in Brittany in old times, and the chant called *Les Serîés*, which was regarded as a genuine relic of Druidic poetry, contained the following line:—"Eight fires, with the great fire lit in the month of May;" so that they had from Brittany a very strong confirmation of Mr. Shore's views. There was a small circle in very much the same direction from the Long Meg circle in Cumberland, and it was very likely that in many cases prominent hill-tops might be found in the line of May-day sunrise from circles. This was a point to which he would give particular attention in any future visits to circles, and he was obliged to Mr. Shore for bringing it before the Institute.

Dr. SHORE, Mr. ATKINSON, Mr. PARK HARRISON, Mr. GREATHED, and Dr. GARSON also joined in the Discussion.

Mr. SHORE, in reply to Mr. Holmes, said there were in Hampshire some mounds which were old moot or court places such as that at Cuthorn on Southampton Common, and others still existed, which were Saxon burh mounds. These he thought were probably used by the Saxons for defensive purposes by timber structures, as surmised by Mr. Clarke and other writers on ancient military architecture. There is in Hampshire a place which at the time of the Domesday Survey was known as Timbreberie.

In answer to Mr. Atkinson the author said that the finding of British burial urns without any barrow, might have been due to these having been placed originally in a disc barrow or ring barrow, *i.e.*, a burial place marked by a circular ditch and bank only, of which some few still existed in Hampshire. These would be most liable to destruction after the inclosures, and many of them must have been obliterated by the plough. The charcoal-burners' huts in the New Forest were of the circular form, and built largely of turf, wood, and fern.

Replying to Mr. Park Harrison he said that most of the tumuli in Hampshire were round barrows, but he had seen about a dozen long barrows in that county.

In reply to the Chairman he said that all the crania found in Hampshire, so far as he knew, were those of brachycephalic people. The skull of the flexured skeleton found in a chalk cist at Wherwell is brachycephalic. In regard to the general question of who the Celts were, and whether they were the earliest people of Hampshire, the author said there were traces of an earlier race, *viz.*, these people who buried their dead in a sitting posture, and that these were perhaps Iberians; but very few of these burials had been found in Hampshire. He only knew of three. There was also the theory

raised by Mr. Elton and other writers, as to a Finnish or Mongol immigration, among which race the custom of inheritance by the youngest son could be traced to a remote antiquity. In Hampshire this custom formerly prevailed on nine manors.

DR. GARSON and MR. LAWRENCE exhibited certain human skulls from the bed of the Thames, and made the following remarks:—

REMARKS on SKULLS dredged from the THAMES in the neighbourhood of KEW.

By J. G. GARSON, M.D., V.P.A.I., and Lecturer on Comparative Anatomy, Charing Cross Hospital.

THE skulls which I have the pleasure of calling your attention to to-night were placed at my disposal for this purpose by Mr. G. F. Lawrence, who will make some remarks regarding the geological stratum in which they were found (see p. 26).

There are in all fifteen specimens on the table before us; some of these are almost complete, while others are unfortunately only fragmentary. Eight of them, those marked B, C, F, I, K, N, O, and P, were found near Kew; three marked D, L, and M were obtained between Kew and Mortlake; two marked A and H came from the river bed near Hammersmith; while the remaining two, E and G, were dredged at Twickenham and in Lion Reach respectively. All of the specimens therefore were obtained within a distance of a few miles. On separating the obviously male specimens from those which are distinctly female, and running the eye along each group, we see that there is a good deal of difference between some of the male skulls, but less variety occurs in the females. Among the male skulls there are at least two well-marked types, which may be readily distinguished by almost anyone. There is first a type in which the skull is low in height, broad (especially in the frontal region), and the vault as seen from the front has a low broad arch. When we look at these skulls from above it will be seen that they are squarish-oval in form. Their cephalic index is about 75·0. Of this type there are five specimens, namely, those marked respectively D, L, M, H, and P. In some of these the glabella and superciliary ridges are fairly marked, while in others these prominences are less distinct. The forehead is receding. One of the specimens, marked P, is metopic. The three Mortlake specimens, one of the Kew, and one of the Hammersmith specimens are of this type. The second type differs from that just described in the cranial

vault being acutely arched from side to side, the brain cavity being long and narrow, and the cephalic index averaging about 70·0. In one (marked F) the glabella, but more particularly the superciliary ridges, are excessively developed, while in the others these parts are moderately marked. Most of these specimens have irregularities of the surface, and in this respect differ from the previous type, which are remarkably smooth and regular. Of this second type there are four examples, namely, two of the specimens found at Kew, and the Twickenham and the Lion Reach specimens; these are marked respectively F, N, G, and E. Possibly a third type intermediate in character, between the former two, is represented by the cranium marked O, obtained from Kew. It is a very fine example of a well-filled and formed skull of large size, rather more dolichocephalic than the average English skull of the present day, the cephalic index being 74·2. The superciliary ridges and glabella are fairly developed but not markedly so; the greatest elevation of the former is over the inner angle of the orbit. This specimen is very nearly allied to those of the second type, and had the means of determining more completely the facial characters of the latter been present, might have been included with them, with a remark that one of the specimens is a little more brachycephalic than the others. In none of the latter have we got the facial portion preserved, and consequently we have to trust to the shape of the calvaria alone in classifying them.

Of the other specimens those marked B, D and I respectively, are females; the specimen marked K is also probably of female sex, but being very incomplete the sex cannot be determined with certainty. The specimens B and G are complete crania, and resemble one another in general appearance; their measurements also are very similar; but B has somewhat more masculine characters than I, the surfaces for the attachment of muscles being more marked on it. The cephalic index of these two crania averages 75·2. In relation to the male specimens the female crania correspond to the first type; the specimen K is markedly of this type, being flatter than the other females. It differs from all the other specimens in having the outlines of its lateral walls, when viewed from above, remarkably straight and diverging till the greatest breadth is attained at the posterior part of the parietal bones—in other words, it is markedly “coffin-shaped.” All the female specimens, it will be noted, were obtained from the river at Kew.

The following notes regarding the character of each individual specimen, and the table of measurements appended, may be useful for the purpose of comparing these with other specimens of ancient British skulls:—

First Type.

- D, L, M and H. Broad flat calvaria, more or less imperfect, of oval form, superciliary arches distinct from glabella and feebly developed. These specimens are very similar in appearance, and are fully adult. The first three found at Mortlake, the last at Hammersmith.
- P. Similar to the previous four specimens, but more dolichocephalic. Metopic; square and broad in frontal region; the arch of the cranial vault low and broad, the occipital region pointed. Found at Kew.

Second Type.

- F. Calvaria of an adult male somewhat imperfect, the base being absent. The superciliary ridges and glabella are extraordinarily prominent, the former extending along the whole orbital margin to the external orbital processes. The external occipital protuberance and superior semi-circular line are also very strongly developed. The sagittal suture is situated in a depression extending from before backwards. The form of the cranium is long and narrow; cranial vault acutely arched from side to side. Obtained from the river at Kew.
- N. Calvaria of adult male. Very dolichocephalic, supra-orbital ridges entirely absent; forehead prominent; the arch of cranial vault acute but sunk at the apex, and in the depression, which extends from before backwards, is situated the sagittal suture. The occipital ridges are feebly marked; the surface generally is uneven. Obtained from the river at Kew.
- G. Calvaria of adult male. Resembles very closely the specimen marked N. Dredged in Lion Reach.
- E. Calvaria of adult male. Forehead moderately prominent; the arch of the cranial vault acute; no depression at the apex as in F, N and G, so that the sagittal suture runs along the highest part of the vault: in other respects resembles the two previous specimens. Dredged at Twickenham.

Other Specimens.

- O. Cranium of adult male. Glabella and superciliary ridges moderately developed, and form a continuous elevation in the centre of the brow region; forehead rather receding, muscular ridges moderately developed.

In all respects a well-formed cranium; the upper part of the face moderately prominent; nose straight; axes of orbits at a medium angle.

- B. Cranium of adult female. Superciliary ridges and glabella moderately developed; forehead square and broad; metopic; cranial arch broad from side to side; the ridges for muscular insertions fairly marked. Teeth moderate in size; not much worn. From the river at Kew.
- I. Cranium of adult female. The muscular ridges feebly developed; frontal region not so broad as in the previous specimen, and the face is shorter from above downwards. From the river at Kew.
- C. Imperfect calvaria. From the river at Kew.
- K. Imperfect calvaria of remarkable shape, very broad in posterior parietal region, narrow in front, with absolutely straight lateral walls, which diverge regularly from the frontal region to the parietal bosses; afterwards they converge rapidly. Occipital region and base wanting. Surface smooth, ridges for muscular insertions absent. The arch of the cranial vault is remarkably flat and broad. Probably female. From the river at Kew.
- A. Imperfect calvaria of young person. Oval in shape, pointed at frontal and occipital ends. From the river at Hammersmith.

It is difficult to determine with any degree of certainty the period to which these specimens belonged, on account of their being dredged up from a river bed. The evidence which must guide us in coming to a conclusion as to the approximate date at which their owners inhabited the country is of a threefold nature. There is first the evidence afforded by the character of the specimens compared with those of known date; next that indicated by the objects of art or manufacture found or dredged up with them: and thirdly, the evidence to be derived from the geological stratum in which they lay. The characters of the specimens can only be imperfectly studied on account of the broken and imperfect condition of most of them, but the form of the calvaria would indicate that they are those of the dolichocephalic race or races whose remains are found in various parts of the country, associated in earliest times with neolithic implements, and who appear to have been the inhabitants of this country anterior to the advent of the brachycephalic or Celtic race usually associated with the Bronze period. The investigations which have been hitherto made regarding the osteological characters of this dolichocephalic or neolithic people, seem to show that they were not a homogeneous race, but

	MALES.						FEMALES.					Young.		
	D.	L.	M.	P.	F.	N.	G.	E.	O.	B.	I.	C.	K.	A.
Maximum length	184	192	c 194	200	187	189	192	183	190	180	175			
Maximum breadth	c 146	144	146	144	133	130	136	130	141	134	133	130	144	137
Cephalic Index	c 79.3	75.0	c 75.3	72.0	71.1	68.8	70.8	71.0	74.2	74.4	76.0			
Minimum frontal breadth	100	99	..	..	..	93	96	91	96	98	90	88		130
Height	134	132	133	130	131	..	..
Height Length Index	69.8	72.1	70.0	72.2	74.9			
Basio-nasal length	96	100	104	100	94			
Basio-alveolar length	102	98	88			
Gnathic Index	98.1	98.0	93.6			
Nasio-alveolar length	78	67	56			
Nasal height	57	47	43			
Nasal breadth	26	23	23			
Nasal Index	45.6	48.9	53.5			
Orbital height	34	31	30			
Orbital breadth	39	36	36			
Orbital Index	87.2	86.1	83.3			
Palato-maxillary length	59	53	49			
Palato-maxillary breadth	65	59	58			
(min. bi-maxillary breadth)	90.8	89.8	84.5			
Palato-maxillary Index	92	85	85			
Maximum bi-maxillary breadth	168.0	185.0	214.0			
Bi-zygomatic breadth						
Mid-facial Index =						
Bi-zygomatic breadth × 100,	131	124	120			
Nasio-alveolar length.						

c = circum.

consisted of more than one race. The two distinct types found among these specimens is therefore an interesting circumstance, and may prove very important in connection with future observations. Although belonging to the earliest known inhabitants of this country, it does not follow as a matter of consequence that these specimens belong to the neolithic age. We find that the neolithic races lived during the Bronze period as well as before it, and even during Roman times, but their distribution during later times was more restricted or beyond the boundaries occupied by the new-comers, as is usually the case with a conquered race. The absence of brachycephalic skulls amongst the specimens before us as well as the fact that they were found in the district which would be first occupied by the brachycephalic race coming in from the east or south-east, would indicate that probably they belong to an age anterior to the invasion of the country by the Bronze age or Celtic people.

The implements which have been found in the same stratum as that from which these specimens were obtained, I understand from Mr. Lawrence, are of stone, bone, and bronze, but no implements were found with the specimens.

The geological stratum in which the specimens were obtained will be described by Mr. Lawrence, who will tell you they were found in the stratum immediately above the London clay. Further information regarding the geological formation of the Thames valley which throws light on this subject, is contained in a valuable paper by Mr. F. C. J. Spurrell, F.G.S., in the "Proceedings of the Geologists' Association," Vol. xi, No. 4. An important point bearing upon the antiquity of the specimens before us is the fact that between the stratum in which they were found and some of the strata above it, are hard concretionary crusts, which required some force to break through, thus eliminating all possibility of the specimens having reached their resting-place by subsidence at a subsequent period during the formation of the more recent strata.

As considerable interest attaches to these skulls from the bed of the Thames, I am glad to be able to announce that Mr. Lawrence has consented to present them to the Natural History Museum at South Kensington, where they will be preserved for future reference and study.

REMARKS *on the* GEOLOGICAL POSITION *of the* SKULLS
dredged from the THAMES.

By G. F. LAWRENCE, M.A.I.

ALL the skulls exhibited here this evening, and described by Dr. Garson (p. 20), have been dredged up at various times from the bed of the River Thames. I have endeavoured to ascertain the exact geological stratum from which they were obtained, but this was rather difficult, as the beds are naturally under water; and I have been able to ascertain only their general character.

At the spot at Hammersmith, where I obtained the two skulls marked A and H, the section of the river bed is as follows:—

8 to 9 feet.—Gravel with small mussel and other river shells. (No. 1.)

3 to 4 inches.—Hard concretion. (No. 2.)

8 inches.—Sandy gravel with occasional pieces of decayed wood and numbers of large mussel shells. (No. 3.)

River bottom of London clay.

The two skulls, A and H, were found in stratum No. 3.

The skulls marked D, L, and M, were found between Mortlake and Kew. The bed here is the same as that last mentioned in the general order of the strata, but the thickness of the various beds is different.

1½ to 2 feet.—Gravel. (No. 1.)

3 inches.—Hard concretionary crust. (No. 2.)

8 feet.—Sand passing into gravel, getting coarser towards the bottom, and covered with calcareous concretions. (No. 3.)

London Clay.

The skulls marked D, L, and M came from stratum No. 3.

The remaining skulls, with the exception of E and G, were found nearer Kew.

Here the strata are different, and are as follows:—

18 inches.—Gravel. (No 1.)

3 inches.—Concretionary crust. (No. 2.)

6 inches.—Gravel. (No. 3.)

2 to 3 inches.—Concretionary crust. (No. 4.)

4 to 6 feet.—Coarse black gravel, encrusted with carbonate of lime. (No. 5.)

The skulls before mentioned came from No. 5, were intensely black, and most of them had a quantity of the calcareous incrustation upon them when found.

The skull marked G was found in Lion Reach, and that marked E at Twickenham; but I have been unable, as yet, to get reliable information as to the strata there.

It will be seen that the skulls I can trace have all come from the lowest layer of the river bed, that lying upon the London clay; but I leave it to more experienced geologists to say what the antiquity of the skulls may be, merely adding that implements of stone, bone, and bronze have been found in this stratum, years ago, while antiquities of iron seem only to occur in the higher strata.

FEBRUARY 25TH, 1890.

EDWARD B. TYLOR, Esq., D.C.L., F.R.S., *Vice-President, in the Chair.*

The election of the Hon. J. W. POWELL, Director of the Bureau of Ethnology, Washington, U.S.A., as an Honorary Member, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the GOVERNMENT OF NEW SOUTH WALES.—Annual Report of the Department of Mines, for the year 1888.

From BARON A. VON HÜGEL.—The Nanga of Viti-Levu. By Mr. Adolph B. Joske, Fiji. With Note by Baron Anatole von Hügel.

From the ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.—Laboratory Reports. Vol. ii.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—Correspondenz-Blatt, 1889, Nr. 11 u. 12; 1890, Nr. 1.

From the BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—Tijdschrift voor Indische Taal-, Land- en Volkenkunde. Deel xxxiii. Aflevering 3 en 4.

— Notulen van de Algemeene en Bestuurs-Vergaderingen. Deel xxvii. Aflevering 3.

— Nederlandsch-Indisch Plakaatboek, 1602–1811. Door Mr. J. A. Van Der Chijs. Deel vi. 1750–1754.

- From the AUTHOR.—Report on the Prehistoric Remains from the Sand-Hills of the Coast of Ireland. Report on Flint Implements of the North-East of Ireland. By W. J. Knowles.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie, 1890. Nr. 1.
- Boletín de la Academia Nacional de Ciencias en Córdoba. Tomo x. Entrega 3a.
- From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. xxxiv. No. 151.
- From the SOCIETY.—Journal of the Society of Arts. Vol. xxxviii. Nos. 1943, 1944.
- Proceedings of the Society of Biblical Archæology. Vol. xii. Part 3.
- Bulletins de la Société d'Anthropologie de Paris, 1889. Fas. 3.
- Bulletin de la Société d'Anthropologie de Lyon. Tom. viii. Nos. 1, 2.
- Bulletin de la Société de Borda, Dax., 1889. Fas. 4.
- Nouveaux Mémoires de la Société Impériale des Naturalistes de Moscou. Tom. xv. Livraison 6.
- From the EDITOR.—The American Antiquarian. Vol. xii. No. 1.
- Timehri. Vol. iii. Part 2.
- Nature. Nos. 1059, 1060.
- Science. Nos. 365, 367.
- Revue Scientifique. Tom. xlv. Nos. 7, 8.

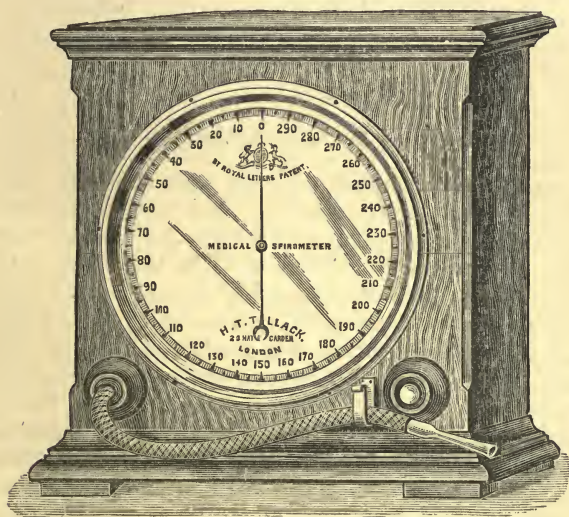
NOTE on a NEW SPIROMETER.

By W. F. STANLEY, F.G.S., M.A.I.

Dr. GARSON exhibited and described *Stanley's Spirometer*, and the following remarks were then made by Mr. Stanley:—

The spirometer exhibited was designed to register the number of cubic inches of air a person could expire at the resistance of a small constant pressure, the resistance in the instrument before the meeting being equal to 2 inches of water pressure only. In the ordinary spirometer in use, formed of a counterbalanced receiver placed in a pneumatic trough, it is well known that according to the counterbalancing and difference of height of water in the receiver the resistance pressure may vary from about — 3 inches to + 3 inches of water. In the first case, air may be drawn in during expiration from the nose. In the second, the muscular power of the lungs will be enabled to expel nearly their

entire contents. In another form of spirometer in which the expelled air moves light fans in air, it is found to be impossible from the unequal friction caused by corrosion and from leakage, to maintain nearly equal rates. The instrument before the meeting is constructed upon a principle common to the best forms of gas meters, but in this case the measurements being for small quantities, and needing no apparatus for continuous additions for registration, nor solidity of parts for rough handling, the measuring apparatus is made much lighter and of more delicate construction. It consists, as in the gas meter, of a light closed fan wheel, with cup fans, revolving nearly under water. The expelled air is projected into one side of the fan wheel. This side rises immediately by the minus gravity of the air to that of the surrounding water, and the air escapes at the surface, while in the meantime another fan comes to position to receive the next quantity of expired air, and so on continuously so long as the lungs expire breath at a pressure beyond the small frictional resistance of the apparatus.



The registration mechanism consists of a light train of three watch wheels and a single balanced hand, which indicates the number of cubic inches on a dial. The hand stops and remains at its final position when the expired air has no longer power to move the mechanism. The registration shows upon average about 10 per cent. more than that given in Dr. Hutchinson's

tables, which were taken from the register of an ordinary pneumatic trough spirometer.

The hand is brought back to zero for another operation by pressing a button, which is connected with simple mechanism adapted to this end.

Mr. TALLACK, the maker of the instrument, also explained its construction.

The CHAIRMAN read a paper by Mr. Skertchley "On Borneo Traps," which will be printed, with illustrations, in the next number of the "Journal of the Anthropological Institute." He then gave a verbal abstract of the following communication:—

The DIERI and other kindred Tribes of CENTRAL AUSTRALIA.

By A. W. HOWITT, F.G.S.,

Corr. Memb. Anth. Inst. of Great Britain.

[WITH PLATE I.]

§ 1. *Introduction.*

IN the course of my enquiries during more than the last decade into the tribal and social organization and the beliefs and customs of the Australian savages, I soon found that some of the most important facts were to be met with in the tribes of Central Australia. With some of these I had had more or less personal acquaintance before their country was occupied by the white settlers. One of these tribes was the Diëri,¹ and it happened that there were special opportunities for obtaining authentic information concerning it. Mr. S. Gason, whose pamphlet on "the Dieyerie Tribe" is well known, would, I felt certain, be able to give most important details. The Lutheran Missionaries had been for some time settled in the heart of the Dieri country, and there were settlers here and there in that part of Central Australia on whose information I felt that I might count. In compiling the facts I thus gathered I found my own knowledge of the Dieri and kindred tribes of the greatest value, as it enabled me not only to check the statements of my correspondents, but

¹ I find it impossible to write this word so as to give its peculiar pronunciation by the aborigines. The "e" has a long drawn sound, which is imitated by the letter "y" in the word as spelled by Mr. Gason.

also to indicate lines of inquiry which had not presented themselves to them.

Some of the information which Mr. Gason has kindly favoured me with was evidently taken from his pamphlet on the "Dieyerie Tribe." These statements of his have this special value, that they have been fully confirmed during the years which have elapsed since he first published them. Therefore I have let them stand as they form a connected part of my own, but I have bracketed them for the information of the reader.

My best thanks are due in the first place to Mr. S. Gason for the unwearied attention which he gave to my numerous enquiries. Then to the Revs. H. Vogelsang, C. A. Meyer, and J. Flierl, of the Lutheran Mission to the Dieri; to Mr. W. J. O'Donnell, formerly of Mount Howitt Station, and to Mr. Robert Hogarth, formerly of Strangways Springs, who have rendered me every assistance in procuring the necessary information as to the tribes referred to.

§ 2. *The Geographical Range of the Tribes.*

The tribes herein considered occupy a tract of country in Central Australia which is not less than 300 miles north and south by 300 miles east and west—that is to say, the whole of that country is occupied by tribes which either recognize a relationship to each other in stock, which is exhibited in their language and in custom, or where that relationship is not acknowledged or has not been ascertained by my informants, it may yet be inferred from the community of custom.

One tribe only, namely, the Kunandaburi tribe of the Barcoo River, within the Queensland boundary, is separated by some hundred miles from the most easterly one of the group of tribes spoken of.¹ Yet the customs of this tribe show clearly the same striking features which exhibit themselves in the others, and it becomes evident that the range of custom must be extended so as to include the Kunandaburi. How far to the westward, southward and northward the peculiar social customs extend of which those of the Dieri may serve as the type I cannot say, and it must be left for future investigation, perhaps even for future investigators, to determine. For the present it must suffice to say that the social organization which is described in this memoir

¹ I am under great obligations to the Surveyor-General of Queensland for most courteously favouring me with a map showing the position of the Mount Howitt Station, which is situated in the Kunandaburi country, and also for the information that its position is at lat. 26° 32' 30" S, and long. 142° 14' 0" E.

extends at least over an area of 500 miles diameter in Central Australia and embraces at least a dozen tribes.¹

The accompanying map (Plate I) shows by boundaries which are only approximate the range of the several tribes. Of these the Dieri is the largest and the most important, occupying country in the delta of the Barcoo River on the east side of Lake Eyre. The range of the Dieri tribe as given upon the map is, according to the data furnished by Mr. Gason, who has also marked out the approximate boundaries of the other tribes with the exception of those of the Yandairunga, for which I am indebted to Mr. Hogarth.

These do not pretend to extreme accuracy, but they will serve the purpose intended, namely, to aid the reader by giving a "local habitation and a name" to descriptions of a geographical character which would otherwise be little better than mere words. It is possible, nay more than probable, that the boundaries do not give the full extent of the territory claimed by some of these tribes. As an instance I take the Yantruwunta. I found a small outlying horde of this tribe on the western side of the Grey Range, and learned from them that their country extended down southwards as far as Flood's Creek.²

Mr. Gason has pointed out to me that the languages of all the tribes surrounding the Dieri have similarities to that tongue, and that the names of waters and of prominent land marks are Dieri in part of the word at least. I remember noticing that the

¹ Mr. S. Gason gives me the following particulars as to the names of these tribes. I have not been able to test their accuracy:—

Awmani, from the word *Awmana* = to sit down, to reside.

Yerawaka, from the word *Yera* = this side, the nearest side, *i.e.*, of the river.

Yantruwunta, from the words *Yantrauta* = about this time, and *wuntha* = travelling; thus meaning "about this time they were travelling."

Wongkūrapūna, from *Wongka* = to sing, *ura* = to hear, and *puna* or *pina* = great; meaning, "the great song was heard."

Urapūna, from *Ura* = to hear, and *puna* or *pina* = great; meaning, "heard distinctly."

Ongkongūrū, from the words *Wongka* = to sing, and *ūrū* = always. Meaning, "perpetually singing." The word "*ūrū*" by itself means "leg," but when used as the termination of a word, it has the above meaning.

Mūrdūla, from *Murda* = a stone, and *la* = of, or belonging to. This refers to the stony character of their country.

² This branch of the Yantruwunta would there, and indeed along the north and south extent of the Grey Range, come in contact with tribes which belonged to a totally different "nation," to use the collective expression which I have adopted elsewhere. The class names, *Materi* and *Kararu*, would meet with and be the equivalents of the class names, *Kilpara* and *Mukwara*. The languages also differ so much as to be a source of ridicule with the Yantruwunta, whom I have heard say, speaking of the tribes on the east side of the Grey Range, "They are foolish people, they call a *snake—fire*." The word "*turo*" in Yantruwunta means "fire"; in the language of their neighbours it means "carpet snake."

natives about Mount Serle in South Australia and I could to some extent understand each other by means of the Yantruwunta language which I used. The range of the two class names Kararu and Materi also points to a very wide extent of country covered by kindred tribes.

The tribes as shown on the map are as follows:—

1. *The Dieri*, which occupies a tract of country on the eastern and south-eastern sides of Lake Eyre. These people boast of their superiority over their neighbours, frequently speaking of them as their children and of themselves as the fathers of all tribes. The surrounding tribes also acknowledge the superiority of the Dieri, and I can confirm this statement of Mr. Gason by my own observation, that two tribes with which I had considerable communication during my explorations, namely, the Yantruwunta and the Yerawanka, always spoke of the Dieri with respectful dread. Mr. Gason says that during his journeys into the country of the surrounding tribes he was frequently asked what the Dieri were doing, and whether they were forming any Pinya,¹ while the Dieri did not exhibit this curiosity on his return to them; only enquiring from him as to the state of the country, the rainfall, and such matters.

2. *The Awmani* lived on the north-east side of Lake Eyre.

3. *The Yerawaka* lived on Cooper's Creek and to the north of the Dieri.

4. *The Yantruwunta* (Yandrawontha as written by Mr. Gason) lived on Cooper's Creek and from some distance to the east of the Queensland boundary down to the Dieri boundary. It was this tribe with which John King, the survivor of the Burke and Wills Expedition, was found by the party under my command, and with one of its hordes, namely, that at Káliūmarū, with which I had constant friendly relations for some nine months that I maintained my dépôt there.

5. *The Wonkūrapūna* lived between the Diamantina River and Cooper's Creek, and to the north of the Yerawaka.

6. *The Urapūna* lived to the northward of the Awmani and next to them to the west were—

7. *The Ong Kongūrū*, who occupied the country to the north-west of Lake Eyre on the Neale and Frew Rivers.

8. *The Mūrdūla* occupied the country to the south of the Dieri, being spoken of by the settlers as the hill tribe, from inhabiting the high mountains which end near to Blanche-water.

9. *The Kūyani* lived south of the Mūrdūla.

10. *The Yandairunga* occupied the country extending from the western shores of Lake Eyre for about 140 miles, and in a

¹ See § 7.

north and south direction for the same distance south of the Peak.

11. *The Kūnandebūri* tribe occupied about one hundred square miles of country at Mount Howitt on the eastern side of Cooper's Creek, being some hundred miles eastward of the Yantruwunta tribe.

Mr. O'Donnell derives this name from Kūnan="excrement"; but it seems to me that it is far more probable that the name may be Kornandaburi, from Korna=a man, and buri=of or belonging to. This would then be strictly analogous to other tribal names, as, for instance, Narinyeri, from Korna=a man, and inyeri = of or belonging to; or even to the tribal name of the Gippsland blacks, namely, Kurnai = men.

I have observed that in the tribes of which the Dieri is the centre the general name, for man, *i.e.*, black man, was Kurna or Korna, and I have elsewhere suggested that it might be used to designate all this group of tribes as the Kurna nation.

§ 3. *Organization of the Tribes.*

In a former communication to the Institute¹ attention was drawn to the existence of two co-existing organizations in Australian tribes. The reader may be referred to those memoirs, but it will be well now to briefly state the main points in order to keep these important features of an Australian community in view either as a tribe distributed over a certain geographical area, or as a community organized in accordance with certain definite social laws. In the former aspect it will be found to occupy as a whole a certain definite tract of country to the exclusion of other tribes.² As an entity it is divided into a number of lesser groups, each of which has a name and occupies a definite part of the tribal country. These are again divided and subdivided until we reach the smallest group consisting of a few families, or even only a single family, which claims also a definite part of the tribal country as its inherited food ground. These groups have a local perpetuation through the sons, who inherit the hunting grounds of their fathers. This is the local organization of the tribe. The tribe in its social aspect as a community may be taken as the entity of people who recognize a common bond of descent. The community is divided into two or some multiple of two intermarrying exogamous groups to which the

¹ "From Mother-right to Father-right," "Journ. Anthropol. Inst.," August, 1882, vol. xii, p. 30. "On the Deme and the Horde," "Journ. Anthropol. Inst.," November, 1884, vol. xiv, p. 142.

² It is a great offence for one native to cross into the country of another tribe without permission.

name, perhaps not the best that could have been taken, of class divisions has been applied.

Each class division has a representative group of totems. These divisions of the community are not in the Australian tribes, excepting in very exceptional cases, aggregated into localities. They then become "local clans" with descent counted through the male line.¹ With such communities I have no concern in this paper.

The two organizations are co-existent and conterminous so far as concerns their entities, but not so as regards the local divisions and the class-divisions respectively; for the two organizations interpenetrate each other.

The term horde has been proposed for the subdivisions of the local organization, where descent is counted in the community through the mother, while the well known term clan remains to be applied to the divisions of those tribes in which descent is counted through the father. This distinction is very necessary, since the word *clan* has been used so loosely in regard to Australian tribes and to their local and even their social subdivisions by some writers, as to have caused unnecessary confusion of thought.

I take the *Local Organization* of the Dieri as an example which, *mutatis mutandis*, is applicable to all the tribes herein dealt with.

It is distributed through the tribal country in five great local divisions, as follows:—

1. Pondo Pina—Lake Hope.²
2. Kopperamana—South-west of Lake Hope.
3. Kilpanina—West of Kopperamana.
4. Kathithandra—The junction of the Barcoo River (Cooper's Creek) with Lake Eyre.
5. Kūramina—Blanchewater.

The Yandairunga tribe is divided into two principal hordes:—
1. Yandairunga; 2. Thidnūngūra. It seems from Mr. Hogarth's statements that the name Yandairunga applies also to the whole tribal country, and that thus while one part of the tribe is Yandairunga, the other part is Thidnungura as well as being Yandairunga.

The *Social Organization* of Australian tribes is now so well known and has been so fully illustrated in many works and memoirs, that it is unnecessary for me to make any general statements, and I may content myself with referring the reader

¹ e.g., Woiworung tribe of the Yana River, Victoria.

² Pondo = lake, pina = great. In the Yantruwunta language called Bando-pina.

for further information to various papers in which I have dealt with the subject.¹

All the communities referred to in this paper have a class organization framed on that which I have elsewhere spoken of as the Barkinji type. That is to say, it divides into two principal classes, each of which is represented by a more or less numerous group of totems.

The members of the class divisions of the Dieri are distributed over the whole tribal country in the various local groups. The divisions are perpetuated by the children inheriting the class name and the totem name of their mother. The descent therefore is matriarchal.

I became aware of this many years back when I commenced systematically to work out the Dieri customs. My informants were the Lutheran missionaries at Lake Hope, and they were quite clear as to the descent of the "murdu" names. Their statements also fell into line with the facts I had collected as to other tribes, and as it accorded with the status of marriage of the Dieri, I saw no reason to doubt their accuracy until I observed a communication from Mr. J. G. Frazer in the "Journal of the Anthropological Institute" on the "Dieyerie Tribe," containing certain statements by Mr. Gason, who therein says distinctly that "the sons take the fathers' class, the daughters the mothers' class," and he illustrates this by taking the totems, "dog" and "rat," as instances. This statement came to me as a complete surprise. The rough draft of this paper, containing a tabulated statement of the Dieri class system together with my statement that the totems were inherited from the mother, had been submitted to Mr. Gason for his perusal and remarks, and that gentleman had returned it to me without any comments on that part of my subject. From my knowledge of the status of the Dieri tribe and from analogy with other neighbouring communities, I came to the conclusion that in this matter Mr. Gason's memory was at fault, or that this might be a matter as to which he had not made such accurate observation as seems to have been usual with him. It was well to settle the matter without delay, and I again communicated with the missionaries in the Dieri country. Those who had been my former correspondents had now left, but from the Rev. J. Flierl I received the most ready and kind attention. He most obligingly continued his enquiries for me after his first reply,

¹ "From Mother-right to Father-right," A. W. Howitt and Lorimer Fison, "Journ. Anthropol. Inst.," August, 1882, vol. xii, p. 30. "Notes on the Australian Class Systems," "Journ. Anthropol. Inst.," May, 1883, vol. xii, p. 496. "Further Notes on the Australian Class Systems," "Journ. Anthropol. Inst.," August, 1888, vol. xviii, p. 31.

² Vol. xvii, No. 2, p. 185.

which confirmed the broad statement that the children of both sexes inherit the totems of their mothers. In order to have some distinct instance as a test I requested him to enquire regarding the deceased Headman, Jalina Piramurana, whom Mr. Gason has so frequently mentioned in his communications to me, and who was the Headman at the time when I knew the Dieri tribe personally. I believed this man to have been of the Manyura (Portulacca) totem, but I know no more.

Mr. Flierl's replies amounted to the following, and they were based upon the statements of the Dieri elders :—

1. The Dieri children, boys and girls, take the murdu of their mothers. If a man of the Kintala (Dog) murdu has a wife of the Kokula (Rat) murdu, all their children, both boys and girls, will be of the Kokula murdu.

2. Jalina Piramurana was of the Manyura murdu. His mother was of the Manyura murdu, and his father was of the Warugati (Emu) murdu.

It is therefore abundantly evident that the Dieri totems have matriarchal descent, and that the tribe therefore makes no exception to the general rule.

Mr. Hogarth's statements show that descent in the Yandairunga tribe follows the same rule.

I regret that I am now unable to give more than three of the systems of tribes spoken of herein, but since they are those of tribes which mark the western and the eastern limits of these tribes and also of the Dieri, which is the typical community, it may be taken as a reasonable assumption that similar class systems extend over the whole of the area referred to in this memoir. It is probable that the northern boundary of this typical system is somewhere about Birdville, on the Diamantina River, where I have reason to believe a system framed on the ordinary Kamilaroi type is found.

To the eastward the Kunandaburi tribe is not far distant from those which have class systems of the Kamilaroi type. To the south-west the two Dieri classes, Kararu and Materi, occur as far as Port Lincoln. We may conclude that the same type of social organization extends so far. I have no information as to the class systems of tribes in the desert country to the west of the Yandairunga.

As I have said, these communities have two intermarrying exogamous class divisions, each having a numerous group of totems. I now give the systems of the Dieri, Yandairunga, and Kunandaburi tribes :—

DIERI.

Materi	{	Karaura	Eagle-hawk.
		Warugati	Emu.
		Malūra	Cormorant.
		Kopiri	Iguana.
		Kintala	Dog.
		Padi	Caterpillar.
		Tikanara	Native cat.
		Püntā	A mouse.
		Maiaarū	A rat.
		Pitcheri	Duboisia Patersoni.
		Kirapara	Bone fish.
		Markara	Mullet.
Kararū	{	Talara	Rain.
		Kaualka	Crow.
		Kararū	Red ochre.
		Būralko	Native companion.
		Kanūnka	Bush wallaby.
		Chūkūrū	Kangaroo.
		Woma	Carpet snake.
		Malka	The Mulga tree.
		Karapana	A mouse.
		Kokūla	A rat.
		Tidnamara	Frog.
		Kanaura ¹	Seed of Portulacca oleracea (Linné).

¹ Manyūra, the Portulacca oleracea, is also a totem, but I do not know of which division; probably, however, of Kararu, for the father of Jalina was Warugati.

Since writing this note, I have received a communication from the Rev. J. Flierl, in which he says, "the Manyura murdu belongs to the class Kararu." He adds, "the old man, Pitulina, who gave me the information as to the murdus of lalina and those of his father and mother, is now dead; but I learn from another very old man, named Ngudupina, that his own murdu is Runtyeri of the Materi class, and that the murdu of his mother was Kuntyeri, and of his father Karku, of the Kararu class." No doubt can, I think, now remain on these questions.

YANBAIRUNGA.

Materi	{	Kūrara	Eagle-hawk.
		Tantani	Cormorant.
		Kopri	Iguana.
		Kadni	A lizard.
		Mūdla	Dog.
		Wadnamura	An insect.
		Wūdigi	The Mulga tree.
		Kirki	Night hawk.
		Kürdmūri	Bull-frog.
Kararu	{	Upala	Cloud.
		Wakalo	Crow.
		Arkaba	Red ochre.
		Thalka	A rat.
		Kokola	A wallaby.
		Waranati	Emu.
		Kūrarū	Musk duck.
		Wanbūra	A snake.

KUNANDABURI.

Matara	{	Kūlbara	Emu.
		Kani	Friiled lizard.
		Wirijūra	Kangaroo rat.
		Mūrūthera	Opossum.
		Kokola	Bandicoot.
		Korinya	A small wallaby.
		Korimora	Brown snake.
		Kopūla	Speckled brown snake.
Yūngo	{	Kūntara	Native companion.
		Taldra	Kangaroo.
		Tūragūrū	Iguana.]
		Titi	Dog.
		Wogarachi	Crow.
		Kogūnya	Blue crane.
		Warangūni	Carpet snake.
		Orikomātū	Frog.

In these systems there is one common class name, namely, *Materi*, or in its *Kunandaburi* form, *Matara*; and I should fully expect to find on enquiry that in accordance with that which obtains elsewhere, *Kararu* would be recognized as the equivalent of *Yungo* wherever two tribes are in contact of which one has the former and the latter name. The geographical range of *Materi* is at least seven hundred miles from the *Kunandaburi* country to Port Lincoln, and it is certainly accompanied by *Kararu* or its equivalent.

The groups of totems are not completely given in these tables. My correspondents all agree upon this. The native informants are rarely fully acquainted with, or perhaps it would be better to say, that they do not recall all the totem names. Totems which had few members have now in some cases completely died out through the almost complete extermination of tribes by reason of the settlement of the country.¹ An inspection of the lists given leads me also to suspect some inaccuracies. Totems occur in one list under one class and in another list under the opposite class, though in no case is this coincidence found in the same tribe, and it is quite possible that this may be an error which has crept in through the native informant being confused by many questions. I have found this to be the case especially after a long interview when giving me the names of those totems with which they had least connection; that is to say, with which their own kindred had not married.

The Dieri and the Yandairunga call the totems *mürdū*, the Kunandaburi call them *gaura*. According to Mr. Gason the two principal totems of the Dieri system are Warugati (Emu) and Talara (Rain), and he adds that it is always a matter of ambition with parents to marry their children into one of these "murdus." This of course means that the Kararu people would desire to marry into the Talara murdu, and the Materi people into the Warugati murdu. Such a pre-eminence of a totem above its fellows would, one would think, tend towards hereditary chieftainship.

The law of marriage in these classes is the usual one. Taking the Dieri as an example, a man of the Materi class marries a Kararu woman, and *vice versa*, always however subject to certain provisos and restrictions to which I shall refer in the section on "Marriage."

In the Dieri case there is not, according to the statements of my informants, any rule such as obtains in certain tribes; for instance, the Kuinmürbura near Rockhampton in Queensland, whereby certain totems marry only with certain other totems. A Materi man may marry a Kararu woman of any totem, always subject to the above-mentioned provisos and restrictions, and

¹ I know an instance when the blacks were not permitted by the white occupiers of their country to roam over it, but were compelled to live in certain places, and these were not the most favourable localities on the run. The result was semi-starvation, followed naturally by cattle killing, and this then led to the tribe being, in the euphemistic phrase of the frontier, "dispersed." When I finally returned to the settlements from Central Australia, the Dieri elders at Lake Hope earnestly besought me to tell the "white fellows," who they had heard were coming to settle in their country, to "set down with their cattle on one side of the lake, and to leave the other side to the Dieri, so that they might live peaceably together." After the settlement of that district the usual consequences followed, including the besieging of the station by the Dieri.

vice versa as to a Kararu man. But while there is no such rule as to the intermarriage of certain totems only in the Dieri or Kunandaburi tribes, there is some evidence that it obtained with the Yandairunga. As to the other tribes mentioned in this memoir, I have no evidence.

Mr. Hogarth has given me a list showing how the totems intermarry in the Yandairunga, which is as follows:—

1. Kurara	marries with	Kuraru, Arkaba, and <i>Waranati Wakalo</i> .
2. Tantani	"	Thalka, <i>Arkaba</i> .
3. Kopri	"	Kokala.
4. Kadni	"	Kokala.
5. Mudla	"	Kuraru.
6. Wadnamura	"	Wanbura, <i>Upala, Wakalo</i> .
7. Wurdigi	"	Warawati.
8. Kurdmuri	"	Thalka.
9. Upala	"	Wadnamura.
10. Wakalo	"	Wadnamura, <i>Kurara</i> .
11. Arkuba	"	Tantani, <i>Kurara</i> .
12. Thalka	"	Tantani, <i>Kurumura</i> .
13. Kokola	"	Kadni, <i>Kapri</i> .
14. Warawata	"	Kurara, <i>Wurdigi</i> .
15. Kuraru	"	<i>Mudla</i> , Kurara.
16. Wanbura	"	Wadnamura.

An inspection of this table shows that it is imperfect, as indeed Mr. Hogarth himself says. According to the ordinary, I may even say the universal, rule, that sisters are exchanged as wives, there should be reciprocity in the marriages. In the above list this is the case as to 2, 4, 6, 12, 13, 16, and therefore the belief is so far justified that it may be so in the other totems. This same principle of reciprocity would supply certain other cases which I have added in italics. There is also some evidence that the totem marries only into a certain group of the opposite totems, for Mr. Hogarth says, "Kūrara claims as a birthright to marry with the murdus Kuraru, Arkaba, and Wakalo," but he then adds, "A man of the Kurara murdu cannot, however, claim all the women of these murdus as his 'Piras.' The number is restricted, but in what manner is not known to me." In the section on "Marriage" it will be shown how in the Dieri tribe a man, though he is entitled by birthright to marry in any of the totems of the other class, cannot claim all the women in them as his Piraurus.

There is a strong feeling of fellowship between all those of the same totem. On the arrival of a visitor at a camp he is entertained by his relatives, or in default of them by his "murdu." "Those of the same totem keep together, eat and live together, and lend each other their women. Even strangers from a distance of three or four hundred miles are thus hospitably entertained. The first question is 'Minna murdu?'

that is to say, 'What is your totem?' The surrounding and distant tribes have some totems different to those of the Dieri, but these can always find out which are the same" (Vogel-sang).

With the Yandairunga it is the same. A strange visitor arriving at a camp is entertained by men of the same totem as himself.

§ 4. *Relationships.*

That system of counting relationships which obtains among the Australian aborigines, has long been known to occur in other parts of the world among savage and barbarous races of mankind. Since it was first brought under notice by the laborious investigations of the late Dr. Morgan, the classificatory system of relationship, as he termed it, has been the subject of much controversy, and the opinions formed as to the origin and the real meaning of this system of relationships have been various. Even among those who as settlers in the Australian bush have been brought into daily contact with the black fellow during the course of a lifetime, one may say with safety that there are few if even any who have taken the trouble to thoroughly master the details of the system or who, if they have done so, have formed any true conception of the foundation on which the relationships rest, or the root out of which they have sprung. How much more difficult must it then be for those who, living in countries separated by thousands of miles from any lands wherein they could study savage life, are compelled, if they desire to study the subject, to have recourse to information at second-hand superficially collected by travellers or by investigators who carried to the task the ingrained beliefs as to relationships which form part almost of the mental texture of civilized man.

In order to clearly see the true nature and bearing of the classificatory system of relationships, it is necessary for the investigator to be so intimately acquainted with those savages who use it that he can, so to say, think with their thoughts and reason with their minds. For notwithstanding all statements to the contrary, it is certain that savages reason, and do so logically within the limits of their experience. But this would not suffice of itself, but he must also have a competent knowledge of their customs and of the organization of their society before he could venture with safety to attempt the difficult task of explaining the true nature of the relationships, and of offering a reasonable hypothesis of their origin. This is the task which

I have set before myself, and I will leave it to anthropologists to assign a value to my results.

Before commencing the task of considering critically the Dieri system of relationship, I must premise that no two tribes of which I have knowledge have precisely the same terms or have the terms arranged with the same relative bearing.

These systems, when collected and compared with each other, form a series from the most simple system to that which is most differentiated in its relations, and therefore most complicated. They form a progressive series, but the progression is not on all fours with the advanced status of the tribe. That is to say, it does not prove on examination that the most advanced system of relationships is used by the most socially advanced tribe. The general result is so, but cases occur where a tribe will be found which has lost its class-system, which has only traces of the sexual license of the Dieri, and which has individual marriage completely established with descent through the male line, but which yet uses a system of relationship which is of the most simple and archaic type. It is not now my intention to discuss why this is, for to do so would carry me beyond my present purpose.

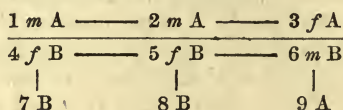
The subjoined tabulated statements of the Dieri relationships have been most carefully examined and checked by me, and have been finally referred to the correspondents by whose assistance they were compiled. These gentlemen have with the most kindly patience submitted to a reiterated cross-examination which I fear must have severely tried them. So far as I can say I believe the lists may be accepted as accurate, and in these matters accuracy is of the first importance. It was, I think, the late Charles Darwin who said that the effects of false inferences are of but little moment, for every one feels a pleasure in setting them straight, but that false facts are most dangerous because there may be but few who can point out their untruth.

I have given the results obtained from four correspondents. It will be seen that they agree almost completely, and that in some cases of difference the terms are synonymous.

In this section I propose to show how these terms fall naturally into certain related groups, and also how one set of terms can be forecast by an inspection of the others. I shall not now offer any hypothesis to account for this, leaving it to be considered in the final section, as also such conclusions as may appear to justly arise as to the origin and development of the remarkable system of relationship which the Dieri have in common with all Australian tribes.

In considering these groups I have found it a great aid to

represent a group of people who are in the necessary relations to each other by the subjoined diagram—



The explanation of this diagram is as follows:—The numerals are for shortness of reference; *m* = male, *f* = female, A = one of two Dieri classes, B = the other class.

Nos. 1 and 2 represent two brothers, 3 represents their sister. Nos. 4 and 5 represent the wives of 1 and 2, and No. 6 the husband of 3. Nos. 4 and 5 are sisters, and 7, 8, 9 represent the children, say a son in each case of the three couples respectively. Moreover the three couples may represent that which is a rule with the Dieri as among other tribes, namely, that the men in the above groups are married to each other's sisters, own or tribal.

The diagram gives all the relations shown in Table A if we consider it to represent either a group of brothers with their wives, or a group of brothers one of whom is married, or a man and woman who are Noa to each other, with another couple who are the Piraurus of the former. The diagram may also represent the group referred to by Mr. Gason at p. 49, or to represent a Pirauru group.

By inspecting the diagram one can see why 1 and his brother 2 are both "addressed" as husband by 4 or by 5. Both these men are *de facto* "husbands," although one may be a Noa husband and the other a Pirauru husband. The Dieri terms when strictly applied also recognize this distinction by attaching the qualification "Waka" to the marital term when applied to 4 by 2, or to 5 by 1. No. 2 being the "sister's husband" of 4 is the same individual as the "husband's brother," and he is therefore also "Noa waka." A similar explanation shows why it is that the "brother's wife" is Noa waka.

I have added to the marital group the two relations of "wife's brother" and "husband's sister," which are shown upon the diagram. It becomes evident that the "wife's brother" forms part of a group analogous to the one which I have now been showing, and that the "husband's sister" is of that group which stands in a marital relation to it.

TABLE A.—MARITAL GROUP.

	Gason.	Vogelsang.	Meyer.	Flierl.
F	Husband ..	Noa ..	Noa ..	Noa.
	Husband's brother ..	Noa wauka ..	—	Noa waka or Yimari.
	Sister's husband ..	Noa wauka ..	Yimari ..	Noa waka or Yimari.
	Accessory husband ..	Piraoroo ..	Nginyaru ..	Pirauru or Nginyaru.
	Wife ..	Noa ..	Noa ..	Noa.
	Wife's sister ..	Noa wauka ..	Yimari ..	Noa waka or Yimari.
	Brother's wife ..	Noa wauka ..	Kamari ..	Kamari.
M	Accessory wife ..	Piraoroo ..	Piranguru ..	Noa. ?
	Wife's brother ..	Kareti ..	Kadi ..	Kadi.
	Husband's sister ..	Kamari ..	Kamari ..	Kamari.

TABLE B.—PARENTAL GROUP.

	Gason.		Vogelsang.		Meyer.		Flierl.
Father	Appiri .. ..	..	Appiri.. ..	..	..
Father's brother	Appiri .. ..	..	—	..	..
Mother's sister's husband..	Appiri .. ..	..	Appiri waka ..	..	..
Mother's pirauru	—	..	—
Mother	Ngandri .. ..	..	Andri.. ..	..	..
Mother's sister	Ngandri waka ..	..	—	..	..
Father's brother's wife	Ngandri .. ..	..	Andri waka ..	..	..
Father's pirauru	—	..	—
Mother's brother	Kaka.. ..	..	Kaka.. ..	..	..
Father's sister's husband	Kaka.. ..	..	Kaka.. ..	..	..
Father's sister	Papa.. ..	..	Papa.. ..	..	..
Mother's brother's wife	Papa.. ..	..	Papa.. ..	..	..

The first part of Table B represents a paternal group; the second part represents a maternal group; the latter part represents two relationships which differ from either of the former. Why is this? The diagram already used will be again of service in giving some reply. Let us take 7 as the individual to start from. 1 is his father, being Noa to 4, who is his mother. But we know that 2 also stands in the marital relation to 4, and is therefore father, but being, for instance, a "group" husband, is qualified by the affixed term *waka*. 2 is, however, also the "mother's sister's husband," and the "mother's sister's husband" being also evidently the same individual as the "father's brother," stands necessarily in the position of "group father" to 7, as well as to 8.

A further comparison of the diagram with the table will show why it is that the maternal relation indicates a group and not merely an individual. Nos. 4 and 5 are both wives of 1, and therefore both stand in the maternal relation to 7. Similar considerations show that 1, 2, 4, and 5 are in parental relations to 7 and 8.

It is further quite evident that 3, the "father's sister," being of the same class as 1, cannot possibly, under the Dieri system, stand in the marital relation to him, and therefore cannot stand in the maternal relation to his son 7, nor to 8, the son of 2. Neither can 6 stand in any such relation to 7 or 8. The relation is quite a different one, and has been distinguished in this system accordingly, by a distinct term.

It will suffice also to point out that the diagram shows why the mother's brother and the father's sister's husband are both called *kaka*. They are the same group, and receive therefore the same designation. The same can be seen to be the case as regards the father's sister, and the mother's brother's wife. Both relations indicate 3.

Table C shows the reverse terms to those given in Table B. The arguments used as to the latter apply also *mutatis mutandis* to the present case. These relationships follow naturally from the former. Although the several informants have not completed their several lists, sufficient has been done individually and collectively to enable one to obtain with sufficient contrast a complete list.

The remarkable feature herein is in the last term given—which is used here in the sense of "son," and would, perhaps, indicate a survival of a relation between the brother and sister which no longer exists excepting under the most unusual conditions in the Kunandaburi tribe, and which the Dieri regard with abhorrence.

TABLE C.—FILIAL GROUP.

		Gason.	Vogelsang.	Meyer.	Flierl.
M	Son	Athamoor ..	Ngata mura ..	Ngata mura ..	Ngata mura.
M	Brother's son ..	Athamoor ..	Ngata mura ..	Ngata mura ..	Ngata mura.
M	Wife's sister's son ..	Athamoor ..	Ngata mura ..	Ngata mura ..	Ngata mura.
M	Pirauru's son ..	Athamoor ..	—	—	—
F	Son	Athani ..	Ngatani ..	Ngatani ..	Ngatani.
F	Sister's son ..	Athani wauka ..	—	Ngatani ..	Ngatani.
F	Husband's brother's son ..	Athani ..	—	Ngatani ..	Ngatani.
F	Pirauru's son ..	Athani ..	—	—	—
M	Sister's son ..	—	Tinara ..	—	Tidnara.
F	Brother's son ..	—	Ngata mura ..	Ngata mura ..	Ngata mura.

TABLE D.

	Gason.	Vogelsang.	Meyer.	Flierl.
Elder brother..	Niehie ..	Negi ..	Negi ..	Negi.
Elder sister ..	Kakoo ..	Kauku ..	Kaku ..	Kaku.
Younger brother	Athata ..	Ngatata..	Ngatata..	Ngatata.
Younger sister	Athata ..	Ngatata..	Ngatata..	Ngatata.
Father's brother's son	Niehie or Athata	Negi or Ngatata	Negi or Ngatata	Negi or Ngatata.
Father's brother's daughter..	Kakoo or Athata	Kauku or Ngatata	Kaku or Ngatata	Kaku or Ngatata.
Mother's sister's son..	Niehie or Athata	Negi or Ngatata	Negi or Ngatata	Negi or Ngatata.
Mother's sister's daughter	Kakoo or Athata	Kauku or Ngatata	Kaku or Ngatata	Kaku or Ngatata.
Father's Pirauru's son	Niehie or Athata	Negi or Ngatata	Negi or Ngatata	Negi or Ngatata.
Father's Pirauru's daughter	Kakoo or Athata	Kauku or Ngatata	Kaku or Ngatata	Kaku or Ngatata.
Father's sister's son ..	Kummie	Kami ..	Kami ..	Kami.
Father's sister's daughter	Kummie	Kami ..	Kam ..	Kami.
Mother's brother's son	Kummie	Kami ..	Kami ..	Kami.
Mother's brother's daughter	Kummie	Kami ..	Kami ..	Kami.

The four first terms require no comment. The second division of the table represents the relations to each other of 7 and 8 in the diagram, it being indifferent whether 7 and 8 are male or female. It follows since 7 and 8 are both in the filial relation to 1 and 2 and to 4 and 5, that they are brothers or sisters as the terms imply. The third division of the table shows the relations of 7 and 8 to 9. It is not possible that the father or mother of 7 or of 8 can stand in marital relations to the father or mother of 9. The class laws forbid this. Hence 7 and 8 cannot be in fraternal relations to 9. Hence a different term is applied to show a different relation.

Finally I must point out again that the individuals shown in the diagram may be "groups," and that it is necessary in applying the diagram as a key to the tables to further remember what has been said as to the Pirauru practice of these tribes.

So much briefly as to the Dieri terms of relationships. I have not given a full and complete list, as no special interest attaches for instance to the "grand-ancestral" terms. Enough has been given to show the principle underlying the system, which is that of "group relationship" based upon "group marriage."

I now supplement the Dieri tables by others showing such of the Kunandaburi and Yandairunga terms as I have collected. It will be seen that they fall generally into the same lines as those of the Dieri, and the explanations which I have already given apply equally to them.

TABLE E.—MARITAL GROUP.

				Kunandaburi.	Yandairunga.
F	Husband .. ..	..	..	Nūbia	Nūpa.
	Husband's brother .. ..	..	..	Nubia Kodi moli ..	Nupa.
	Sister's husband .. ..	..	..	Nubia Kodi moli ..	Nupa or Būlya.
	Accessory husband .. ..	..	..	Dilpa mali	Pira.
	Wife .. ..	..	..	Nubia	Nupa.
M	Wife's sister .. ..	..	..	Nubia Kodi moli ..	Nupa or Bilya.
	Brother's wife .. ..	..	..	Nubia Kodi moli ..	Bilya.
	Accessory wife .. ..	..	..	Dilpa mali	—
				Wife's brother	—
				Husband's sister	—
				Kokūndi	—
				Kurangi or ūluga ¹ .	—

¹ Uluga = elder woman.

TABLE F.—PARENTAL GROUP.

		Kunandaburi.	Yandairunga.
Father .. ..	..	Urninū	Kuyia.
Father's brother .. ..	..	Kauali	Kuyia.
Mother's sister's husband .. ..	..	—	Kuyia.
Mother .. ..	..	Amundi	Luka.
Mother's sister .. ..	..	—	—
Father's brother's wife .. ..	..	Amundi	Luka.
Mother's brother .. ..	..	—	—
Father's sister .. ..	..	Uluga	—

TABLE G.—FILIAL GROUP.

		Kunandaburi.	Yandairunga.
M	Son	Karaga	Wardu.
M	Brother's son	—	Wardu.
	Wife's sister's son	—	—
M	Sister's son	Denali	—
F	Son	Worūa	Wardu.
F	Sister's son	Worūa	—
	Husband's brother's son	—	—
F	Brother's son	Karaga	—

TABLE H.—FRATERNAL GROUP.

		Kunandaburi.	Yandairunga.
Elder brother .. ..	..	Kokūndi	Nūthi.]
Elder sister .. ..	..	Kūrauye	Kaku.
Younger brother .. ..	..	Apogi	Kubaka.
Younger sister .. ..	..	Apogi	Kubaka.
Father's brother's son .. ..	..	Kokūndi or apogi..	Nūthi.
Father's brother's daughter .. ..	..	Kurauye or apogi..	Kaku.
Mother's sister's son .. ..	..	—	Nūthi.
Mother's sister's daughter .. ..	..	—	Kaku.
Father's sister's son .. ..	..	—	Witima.
Father's sister's daughter .. ..	..	—	Bilya.
Mother's brother's son .. ..	..	—	Witima.
Mother's brother's daughter .. ..	..	—	Bilya.

One matter now remains to be noted as to the relationship terms of the Dieri. I touch upon it with reluctance, but on grounds which will become clear to the reader I am obliged to do so.

Mr. E. M. Curr in his late work on the "Australian Race," says¹ that there are words used by the aborigines which have the same meaning as our substantive collective terms, uncle, aunt, nephew, niece, cousin, and so on. It will be well to consider this statement here because he gives a table of Dieri terms, derived from Mr. Gason apparently, in support of his statement. Each of the terms above referred to includes, in our own system at least, two separate relations. For instance, uncle includes father's brother and mother's brother; aunt includes mother's sister and father's sister, and so also with the other terms.

I take the term "uncle" for examination in regard to the Australian term, but any other would do. The diagram used already shows that father's brother, No. 2, and mother's brother, No. 6, are of different classes. It is therefore at once apparent that they cannot stand in the same relation to 7, which would be required by Mr. Curr's statement. I say without hesitation that no one term exists in the Dieri language which includes or can possibly include both "father's brother" and "mother's brother," as does our word "uncle" in the sense in which we use it. As I have shown both by the customs of the Dieri and the relationship terms that the "father's brother" stand in *loco parentis* to No. 7, and is therefore "father" and not "uncle" (i.e., mother's brother); assuming for the sake of argument that the word "*kaka*," which Mr. Curr gives in his list (Vol. I, p. 142), is the nearest equivalent for the term *uncle*. But *kaka* does not merely indicate the mother's brother. It refers to a relation which is borne, as the diagram shows, by No. 6, both as "mother's brother" and as "father's sister's husband."

The application of the diagram to each of the above-mentioned collective terms will show clearly that in each instance the term is made up of two, or of two couples of terms which, looking at the matter from the Dieri standpoint, belong respectively to the two exogamous intermarrying classes. They stand respectively on the opposite sides of the dividing line, and cannot have anything in common towards an individual standing in some relation to one of them.

I now give a correct list in Table F of the principal collective terms referred to by Mr. Curr with the Dieri terms for the several relations, and I leave it to him to show any one instance in proof of his assertion.

So much for the assertion, but there yet remains a statement made by Mr. Curr in connection with this matter which cannot be passed over in silence. At p. 142 of the work referred to occurs a passage in which Mr. Curr charges the Rev. Lorimer

¹ "The Australian Race," Government Printer, Melbourne, 1886.

Fison with "*more suo*" keeping to himself certain terms—that is to say, the substantive collective terms above referred to as being adverse to his argument. Mr. Curr here made a charge of literary dishonesty against Mr. Fison, and I believe he has done so through want of knowledge on his own part of the subject on which he writes. Had he devoted that attention to the question which the nature of the subject requires, he could not have fallen into the error which he has committed, nor would he have so recklessly levelled such a serious charge of literary dishonesty against a fellow-worker in the anthropological field. When he comes to see the nature of his own error, it is to be hoped that he will deeply regret the rash and unwarranted assertion which I have quoted. It appears in a work which has gone forth under the stamp of authority, having been published by the Government of the Colony of Victoria. Only a small proportion of those who may read these charges will from personal knowledge be aware how utterly impossible such conduct as that imputed to him would be to the Rev. Lorimer Fison.

In Table I (p. 54) I have given sufficient of the terms to compare with the table given by Mr. Curr in support of his statement. In it there are certain terms which at first sight seem to indicate each two distinct relations, and would thus be "collective terms" in the sense used. As an example, I take the term *kamari*. This term includes two relations which we call collectively "sister-in-law." But the relations are in fact brother's wife (female speaking) and "husband's sister" (female speaking). The diagram will again be of use here in showing why this is. Taking 4 as the person speaking, her brother's wife and her sister's husband are seen to be the same person, namely, 3. This is therefore not a collective term in the sense used by Mr. Curr, but a "group term," as I have before explained. In the same way *kareti*, used by 1, refers to the same individual, 6, under two aspects but in the same relation.

§ 5. *Marriage.*

Among the Dieri and kindred tribes there are two forms of marriage: There is the marriage of a man of one class to a woman of the other class, which may be spoken of as "individual marriage," or for convenience as "Noa marriage," using the Dieri term, which is equivalent to our word "spouse." There is also a marital relation existing between a man and a number of women, or between a woman and a number of men, the same rule as to the classes being observed. This latter connection may be spoken of as "group marriage," or for convenience the

TABLE I.

	English terms.	Gason.	Vogelsang.	Flierl.
M	Father ..	Apiri ..	Appiri ..	Aperi.
F	Father's brother ..	Apiri wauka ..	Appiri ..	Aperi waka.
M	Mother's brother ..	Kaka ..	Kaka ..	Kaka.
M	Mother ..	Andri ..	Ngandri ..	Andri.
M	Mother's sister ..	Andri waka ..	Ngandri waka ..	Andri waka.
M	Father's sister ..	Papa ..	Papa ..	Papa.
M	Brother's son ..	..	Ngatamura ..	Ngatamura.
M	Brother's son ..	Athamoora ..	Ngatamura ..	Ngatamura.
M	Sister's son ..	..	Tinara ..	Tidnara.
F	Sister's son ..	Tinara ..	..	Ngatani.
M	Brother's wife ..	Athani wauka ..	—	—
M	Wife's sister ..	Noa wauka ..	Yimari ..	Noa waka or Yimari.
F	Brother's wife ..	Kamari ..	Kamari ..	Kamari.
F	Husband's sister ..	Kamari ..	Kamari ..	Kamari.
F	Wife's brother ..	Kareti ..	Kareti ..	Kadi.
M	Sister's husband ..	Kareti ..	Kareti ..	Kareti.
M	Husband's brother ..	Noa wauka ..	—	Noa waka.
F	Sister's husband ..	Niehie or Athata ..	Negi or Ngatata ..	Noa waka or Yimari.
M	Father's brother's son ..	Kummie ..	Kami ..	Negi or Ngatata.
M	Father's sister's son ..	Kakoo or Athata ..	Kaku or Ngatata ..	Kami.
M	Father's brother's daughter ..	Kummie ..	Kami ..	Kaku or Ngatata.
M	Father's sister's daughter ..	..	..	Kami.

Dieri word for the practice may be used, speaking of it as "Pirauru marriage." The right understanding of these two systems of marriage, of their relations to each other, and of their social consequences is so important that I feel I shall not need any excuse for entering fully into details as to the Noa and Pirauru systems.

Neither of these two forms of marriage is permitted between persons of the same totem (*murdu*), for these are regarded as being of the same blood, as mother and child, or brother and sister, as the case may be. Nor is it permitted between persons who stand to each other in any of the following relations:—Father, father's brother, father's sister, mother, mother's brother, mother's sister, brother's child, sister's child, father's brother's child, father's sister's child, mother's sister's child, mother's brother's child brother or sister.

These also include the group relations. By this I mean to say that not only would a woman be forbidden to a man as a wife who was the daughter of his mother, but also every woman who stood in the "group relation" of daughter to her.

A man or a woman becomes "Noa" to each other by the woman being promised to him during her infancy by her father or by being allotted specially to him as Noa by the headman and the great council of the tribe. Where a father promises his daughter as "Noa" the agreement is faithfully carried out. A man cannot acquire a Noa until he has passed through the ceremonies of *Wilyaru* and *Mindari*.¹ That is, he cannot take his promised wife, nor would one be given to him, until he has attained the full rank of manhood. A Dieri woman does not become Noa until after the ceremony of *Wilpadrina*,² and she cannot be Noa to more than one man at the same time. This restriction does not apply to the man, who may have more than one Noa at the same time. Each man in time obtains a Noa, but she may be perhaps the old wife of some older man who has been made over to him.

There is no customary law in the Dieri tribe which prohibits a person marrying another of the same horde or lesser local division. The sole restrictions with them depend upon class relation or nearness of kin.

Besides this Noa marriage there is also a form of group marriage which is called by the Dieri *Piraurū*, or as known and observed by the white settlers, and called by them, the "Paramour custom." My attention was, when exploring in that part of Central Australia, attracted by the unusual laxity which I observed in the intersexual relations and the freedom with

¹ See *infra*, p. 82.

² See *infra*, p. 87.

which the Yantruwunta, Dieri, and other tribes proffered their women to friendly strangers.

Mr. Gason, in his well known and valuable pamphlet on "The Dieyerie Tribe,"¹ gave some particulars, and I now proceed to detail the more full and exact information for which I am mainly indebted to him.

Shortly before the holding of the first of the series of initiation ceremonies, which the whole tribe attends, namely, that of Kūraweli wonkana,² the heads of the totems and the elder men meet in council and after deliberation determine which of the people shall be allotted to each other as Pirauru. It is only men who have passed through the Mindari ceremony and girls who have passed the Wilpadrina ceremony who can be Pirauru.

The various couples who are thus allotted to each other are not consulted, and it is not considered whether there is or is not any mutual liking or affection between them. The council of elders decides as to their suitability. That is to say, there must be no disability by reason of class, or of nearness of kinship. In fact, those who may be Pirauru to each other are those who might become Noa.

A few nights previous to the ceremony of Kuraweli wonkana the headman, in slow and measured sentences, with a pause between each sentence, announces the names of each couple of Piraurus, and the words are repeated by one or more of the elders.

At each name a general shout is raised in the camp. This time is one of festivity, feasting, and amusement, and large supplies of food have been collected. Dancing is carried on, and besides this there is for about four hours a general license in the camp as regards the Piraurus. Moreover the Pirauru are when allotted to each other always in that relation in the future, and as a new allotment takes place at each circumcision ceremony it follows that a man or woman may after a time come to have a number of Piraurus.

Mr. Gason has described to me that which he saw on these occasions, in unmistakable terms, which may be paraphrased by saying that the women present and all the men who had passed the Mindari ceremony formed groups of Piraurus in which for the time being complete promiscuity existed.

A man may always exercise marital rights towards his Pirauru when they meet if her Noa be absent, but he cannot take her away from him unless by his consent, excepting at certain ceremonial times when general license prevails between the inter-

¹ "The Dieyerie Tribe of Australian Aborigines," by Samuel Gason, Police Trooper. Cox, Government Printer, Adelaide, 1871.

² See § 8, *infra*, p. 81.

marrying classes, and even on a special occasion mentioned in the class. The ceremonial occasions are, for instance, at the initiation ceremonies or at one of the marriages arranged between a man and a woman of two different tribes. But the consent of the Noa husband is seldom withheld from the male Pirauru.

A Noa husband in ordinary times always takes precedence of a Pirauru, but in his absence the senior Pirauru present takes the wife of the former and protects her during his absence. The Noa wife also takes precedence of the female Pirauru should both be together. For instance, if a man were camped somewhere with his Noa and his Pirauru, the man would sleep next the fire, his Noa next to him, and the Pirauru next to her.

Senior male Piraurus take precedence over junior male Piraurus. These matters are carefully arranged so as to prevent jealousy, but in spite of all this arrangement, most of the quarrels among the Dieri arise out of this Pirauru practice, for under it a husband cannot keep his wife exclusively to himself. Nor do the elder men monopolize the women, for since the women are allotted to many men in course of time, there are in fact no men who have not one or more Piraurus, even if they have not a Noa.

Some example will show how the system works among the male Piraurus. Suppose an elder and a younger man had the same woman allotted to each as a Pirauru. In the event of the younger being at some camp with his Noa and his Pirauru and the elder man being there alone, the latter would have a right to take the Pirauru of the former. Should the two men be at the same camp and without their Noas, the older man might take precedence and have the company for the time of any Pirauru there who had been allotted to both of these men and who was available to them.

But the two men might also occupy the same hut with her, and she would share with both the food she collected.

It has been before said that the elder men do not monopolize the women, but although they have no absolutely exclusive monopoly it is certain that they have very extended privileges. For instance, the Wilpadrina, which is spoken of elsewhere,¹ is the exercise of an exclusive privilege for a time. The headmen also usually have more Noas and more Piraurus than others. The headman, Jalina Piramurana, had over a dozen Piraurus allotted to him, and in addition several women were assigned to him in each of the neighbouring tribes as a mark of respect, as so to say honorary Piraurus. Any man old

¹ See § 8, *infra*, p. 87.

or young was considered to be highly honoured by having one of this headman's Noas allotted to him as a Pirauru. Such men thus distinguished were generally heads of totems or otherwise of note.

The children of the female Pirauru are called "son" and "daughter" by her male Pirauru, and they call him "father," and the children of a woman call the Noa wife of her Pirauru "mother." But if a man were more narrowly questioned he would qualify his statement by saying that the Noa of his mother is his "Apiri mŭrla"—"Apiri mŭthŭ," or his "real father" or "very father," and that the Pirauru of his mother is his "Apiri waka," or "little father." His father's Pirauru would also be more precisely defined as his "Andri waka," or "little mother."

Frequently the women say they are ignorant which man, the Noa or the Pirauru, is the father of any particular child, or they do not admit that there is only one father. Thus the child is indeed the child of the "group father" and not of the individual, which is the natural result of "group marriage."

In the event of a Noa dying a female Pirauru will take charge of her children and attend to them with affection, and not in any way after the manner of a "stepmother." The children of the female Noa and of the female Pirauru are affectionate towards each other, and do not in any circumstances show any jealousy of each other. They are brothers and sisters.

It is an advantage to a man to have as many Piraurus as possible. He has then less work to do in hunting, as his Piraurus when present with him supply him with a share of the food they procure, their own Noas being absent. He also obtains great influence in the tribe by lending his Piraurus occasionally and receiving presents from the young men to whom Piraurus have not yet been allotted, or who may not have Piraurus with them or in the camp where they are.

This is at all times carried on, and such a man accumulates a lot of property, weapons of all kinds, trinkets, &c., which he in his turn gives away to prominent men, heads of totems and such, and thus adds to his own influence. This is regarded by the Dieri as in no way anything but quite right and proper.¹

These particulars as to Noa and Pirauru marriage in the Dieri

¹ This proffering of women as a recognition for friendly presents made by us when exploring in Central Australia, to the tribes which we met with, such as the Yantruwunta, Dieri, and others, was occasionally troublesome. I remember such an occasion, when I had almost forcibly to turn out of the camp a prominent man of the Purdi totem, who had come attended by his two Piraurus, as a friendly attention to ourselves. The two Piraurus were so demonstrative that there could not be any doubt as to the intention, irrespective of Purdi's own statements.

tribe are applicable with slight variations to the other neighbouring tribes, and also as I shall show shortly to the Kunandaburi and even to far distant tribes in Eastern Queensland.

At present I shall continue the subject of the Dieri by speaking of marriages between Dieri and neighbouring tribes which are so to say "state affairs."

Such a marriage, for instance, between two individuals of the Dieri and Murdula tribes respectively is a subject of negotiation for several months. Much diplomacy is used, as one tribe desires if possible to sift out the real reasons which induce the other tribe to desire the marriage. As a preliminary, handsome presents, such as spears, boomerangs, carved shields, bags of all kinds, &c., are sent to the woman's father, to the headman of the tribe, and to the other principal men. In the event of the negotiations falling through these presents are returned. Mr. Gason says that he has known occasions where a match was made in a few weeks, both sides being eager to settle the matter with a view of concluding a peace and of terminating disputes and settling grievances. In these cases marriages were the means of preventing bloodshed. The young man and the young woman have no voice in such a marriage. The mother and the near female relatives of the girl keep up a constant wailing at every idle moment. No encouraging word is given to her, and all she has to do is to obey. Whether she likes the marriage or not, she must submit to the will of the elders of the tribe.

In the tribe itself there is always a hot opposition to a marriage which takes a girl out of it, and the fathers in it who have unmarried and eligible sons, offer every objection to the arrangement.

On such a marriage being settled a place is fixed upon near the boundary between the two tribes, where a great corroboree (Wima) is held. The festivities are kept up for several days during which time free intercourse is allowed between the sexes without regard to existing marriage relations. No jealous feeling is allowed to be shown during this time under penalty of strangling,¹ but it crops up afterwards and occasions many bloody affrays.

If the girl does not take kindly to her husband she very probably tries to escape home, but is on all such occasions pursued, and if captured is brought back to be jeered at by the other women. In some cases the girl is also cruelly ill-used.

If, however, the girl takes to her husband and makes herself popular, she is treated kindly, and it is in her power to command

¹ Nulina = strangling; Nulinuthi = to strangle.

influence with the other women. Should any important matter arise between her husband's tribe and that of her parents she becomes most useful in negotiating with the latter, with which she has naturally more influence than a stranger.

In the Yandairunga tribe according to Mr. Hogarth, to whom I submitted a *précis* of the preceding statements, the marriage relations are precisely those of the Dieri. He said, in writing to me of the Yandairunga customs, "I think that the Yandairunga are identical with the Dieri, although their language is quite different. I believe if you lay down the same manners and customs and ceremonies for both you will be almost absolutely correct."

In this tribe one form of marriage is when a man and woman are Nūpa to each other, and it corresponds to the Noa of the Dieri. In this there is, however, a difference that the girl when quite young is promised by her relations, such as her mother's brothers, her own brothers, to a man who is of course of the suitable class in the tribe. The other form of marriage is that of group to group, and is called "Pira," which is the "Pirauru" of the Dieri with, however, a distinction, which is thus indicated by Mr. Hogarth. He says that men claim certain women as Piras by "birthright." When we remember his statement that certain totems intermarry with certain other totems one comes to see that this claim by birthright is another way of putting this fact forward. Mr. Hogarth also tells me that he does not know in what manner the Piras are allotted to each other. We may be certain from the analogy of the Dieri example that a Yandairunga man would not be permitted to have as a Pira any woman whom he might not have had as a Nupa, and moreover that his "birthright" to certain women as Piras would be controlled by the ceremonial customs. The Yandairunga adjoined the Dieri to the south, and as a neighbouring tribe I think we may assume the members of it attended the Mindari ceremony of that tribe.

Mr. Hogarth adds as an important fact in relation to the marriage customs of the Yandairunga, that it was not lawful for a woman to go to a camp where there were strange men, and talk with them in the absence of her husband, or unless it were at the camp of a near relation. This is indeed a rule of almost or of quite universal application.

Mr. O'Donnell says, as follows, of the Kunandaburi tribe, who have the class divisions Matara and Yungo:—

A Matara may marry a Yungo of any totem but may not marry any totem of the Matara class. The same law applies to Yungo. Female children during their infancy are given by their parents to certain men or boys, who claim them as soon as they

arrive at the age of puberty, and often before. The man asks the permission of the girl's father, or that of the mother will suffice, to take the girl away. He then waits until she is some distance from the camp and seizes her, and drags her away, assisted by a friend who is "Abija" to her, that is, who would have been eligible for her husband had she been promised to him. While dragging her away she resists all she can, biting and screaming, while the other women look on laughing. Having taken her away to a convenient distance they are joined by one or more men. The bridegroom returns to the camp and the marriage is consummated by the Abija and the other men. Sometimes they do not return to the camp with the girl for two or three days. When the girl is brought back there is what may be described as a continuation of the *jus primæ noctis*, in which all males in the camp participate, not even excepting the nearest male relatives of the bride. This marriage ceremony is sometimes kept up for many days, there being a dance each night. The bride is then taken possession of by her husband. If she runs away from him she is subjected to severe punishment by beating or by cutting with a knife¹. This marriage relation is called by the Kunandaburi Nūbia, and it agrees with the Noa of the Dieri and the Nūpa of the Yandairunga.

The Kunandaburi have also the equivalent of the Pirauru which is called by them Dilpa mali. It is, as Mr. O'Donnell puts it, a group of Matera men cohabiting with a group of Yungo women, or *vice versâ*. They do not always camp together, but when they meet they exercise marital rights, and moreover are constantly changing their Dilpa malis. Every woman, he says, may have as many Dilpa malis as she likes, so long as she does not transgress the class laws. The husband (Nubia) does not raise objection, indeed men often exchanged wives temporarily.² It is rare that the men quarrel about women; yet occasionally they beat the women through jealousy, but do not always get the best of it. Mr. O'Donnell tells me that at times the women beat the men severely single-handed. The husband, that is, the Nubia, accepts some trifling present from the Dilpa mali as his due.

¹ When in the Cooper's Creek country before it was settled, I observed most formidable knives in use by the natives. They were made of a flake of flint embedded in a lump of gum. This being held in the hand with the sharp cutting edge outwards, formed a terrible weapon at close quarters, with which it was possible to inflict fearful wounds on the naked body of an adversary. In such proceedings as those referred to above I have heard of women being almost cut in pieces.

² I remember an instance of the loan of a wife even in the Kurnai tribe. One ancient had two wives and another ancient, who was going on a journey, had none. The former lent him one of his two, and explained it by saying, "The poor fella go long way, that one very lonely."

Besides these marital relations which exist between the groups of Dilpa malis there are such also between men and their brothers' wives and women and their sisters' husbands, but in these cases it is *sub rosa* and not an open and recognized connection as is that of the Dilpa mali.

A man is the Nubia of his wife and the Nubia-Kodimoli of his brother's wife. When the brother dies the former ceases to be the Kodimoli of the widow, and becomes her Nubia, and her children call him father.

Mr. O'Donnell did not, I regret to say, explain to me how the Dilpa malis became allotted to each other, nor anything more as to the Wira-jinka custom which I shall now mention. He left that part of Australia and I learned no more from him. I cannot, however, doubt that the allotment takes place under some recognized law such as that of the Dieri. All such matters are governed by ceremonial custom.

The Wira-jinka of the Kunandaburi is one of these ceremonial customs which are by them spoken of as Mūni. In this case the Mūni or ceremony terminates by all the men present having intercourse with one woman who has been selected beforehand. Wira-jinka means literally *emissio seminis*, and is held when only a few are present as well as when there are large gatherings. The woman is selected from either class, and all the men and boys present have intercourse with her, no matter what the relationship.

The Wira-jinka is also practised in certain cases of sickness.¹ Similar statements have been made to me by Mr. C. M. A. King, police magistrate at Silveston, in New South Wales, as to three tribes in that district, namely, the Girmoduchie, Punthiemira, and Wankamira. These tribes have the classes Kilpara and Mukwara. Mr. King enters very fully into details which supplement those given by Mr. O'Donnell, which are, however, not easy to reproduce in print.²

During the writing of this paper some important evidence as to the existence of a form of Pirauru marriage in tribes still more remote from the typical Dieri has reached me from my valued correspondent, Mr. J. C. Muirhead. He says, as follows, speaking of the Wakelbura tribe of the Belyando River in Queensland:—

Take as an example seven men of this tribe, all of the Smallbee totem, of the Kurgilla sub-class of the Matera class. They are some of them own, some of them tribal, brothers—that is to

¹ Such customs as these are probably more general than may have been suspected. A similar extreme license occurs, according to Mr. Fison, among the Nauga tribes, of Fiji, when circumcision is practised on the illness of a chief.

² I have anticipated any future use which I might make of these details by communicating them *in extenso* to Dr. Tylor.

say, some of them have the same father and mother, while some are of the same totem. One of these men is married, his wife being carpet-snake, of the Obukan sub-class of Wuthera class. That is the totem which marries with theirs. All these men call her "wife," and she them "husband," and the seven men all have and exercise marital rights over her. Her children call all the men "father," and all the men are bound to protect the children.

This is unmistakably a form of Pirauru marriage, and I communicated it to Mr. Gason, who wrote to me in reply giving the parallel Dieri practice.

He says: "If there are five brothers, two of them own brothers, the rest merely tribal brothers, that is, men of the same Murdu, and one of them has a wife, by their customs and natural laws the whole five exercise marital rights over her, but the four only in the absence of the husband. They are her natural guardians, and take precedence over everyone except her Noa and her Piraooroo. All her children are 'Athamoorana' to the five men, and they are 'Apiri' to the children. These laws are identical with those of the Eastern Queensland tribe which you mentioned to me in your letter."

This instance given by Mr. Gason will also apply *mutatis mutandis* to a case of a man and the sisters of his wife (Noa).

§ 6. Headmen and the Tribal Council: the Punishment of Offences.

It is of great interest to enquire what form is taken in these tribes by the authority which governs the relations of its members towards each other, to the community as a whole, and to neighbouring kindred tribes. Some writers have stated that in Australian tribes there are no chiefs, and also with more or less distinctness that there is no "government," and that the tribesmen do that which seems right to their individual selves. Quite lately statements such as these have been restated in a work of authority, and it is therefore well to see in this particular instance what the evidence of so competent a witness as Mr. Gason amounts to.

Simply as a question of terminology it would be well to avoid the use of the term "chief" in reference to the Australian blacks, because the word suggests the hereditary chieftainships with which we are familiar in some of the Polynesian tribes. But it is certainly erroneous to assert that there are no men who have controlling powers, and that every man may do that which is right in his own eyes.

The statements already made show that in the Dieri tribe as in, I may venture to say, all other Australian communities, there is some social authority apart from public opinion which takes cognizance of offences against the community by individuals, and is competent to redress them. Such a case would be cases of intercourse which are incestuous according to the laws of the Dieri, and are called by them *Buyulu parchana*.¹

As a matter of course there is in each totem some man who is older than all the other men. By reason of this superior age he becomes the head of his totem and is called "*Pina-pinaru*," that is to say, "the oldest of the old," or also "the greatest of the great."²

He is the head of his totem and has authority in it as such. His authority is of course restricted to his own totem, and he has no authority in another totem. But though he is thus the head of his own totem it does not necessarily follow that he has the greatest authority and influence in it. In other words, though he may be the head of his totem because of his seniority it does not necessarily follow that he is what may be called the headman of it. He will, however, have this position also if to superior age he adds great ability of some other kind. For instance, an old man whom I knew at Lake Hope was the head of the *Karawūra* totem, but he was not a warrior, an orator, or "doctor," and had little or no influence in the tribe beyond his own totem. This is an instance of a man who was head of his totem, but not its headman. On the other hand, *Jalina Pira-mūrana*, the head of the *Manyūra* totem, was eminent as a warrior and "doctor," and was at the time when I knew the tribe its recognized principal headman. He is frequently mentioned in this memoir. I may now briefly say that there are headmen of totems, of hordes, and finally of the whole tribe.

These heads of totems and headmen of the tribal organization, the great warriors, the distinguished orators, the powerful wizards, form a council which holds its meetings in secret, and thereat decides upon matters affecting the welfare of the tribe and deals with offences committed against it or against public morality. The extreme interest of this subject requires that I should in illustrating it give the statements of Mr. Gason as I have them now before me in the manuscript, which I put

¹ See p. 83.

² I observed the great respect and reverence shown to the very old men. On the borders of Sturt's Desert a deputation of very old men came to me to request that I would visit a "*Pina-pinaru*." I did so in their company, and found him to be of advanced age. The others cared for him with the utmost solicitude, and must have carried him from place to place, for he was unable to walk.

together from his letters and forwarded to him for his inspection and final reconsideration. He says, as follows:—

“A headman of the Dieri tribe attains to power and influence by personal bravery, by eloquence, or by being well connected—that is to say, by having many relations (Büyülü marpū),¹ that is to say, ‘near relations.’ During the time I was with them there was only one headman who had supreme control over the whole tribe. From his extremely polished manner and his gestures, I named him the Frenchman. He was feared and greatly respected by his own and by the neighbouring tribes. Neither his two brothers, both of them inferior to him in bravery and oratorical powers, nor the elder men presumed to interfere with his will or to dictate to the tribe except in minor matters. It was he who decided disputes, and his decisions were received without appeal. Even the neighbouring tribes sent messengers to him with presents of bags, pitcheri,² red ochre, skins, and other things. He decided when and where the ceremonies of circumcision and initiation should take place. His messengers called together people from a circle of a hundred miles to attend the peace festivals (Mindari), to attend his councils or in other matters which were considered to affect the welfare of the tribe. I have often been invited to attend his councils, when they proposed to celebrate any grand ceremony. He possessed wonderful powers of oratory, making his listeners believe anything he suggested, and at all times ready to execute his commands. His disposition was not naturally cruel or treacherous, as was that of many of the Dieri, but he was when not excited, kind, considerate, patient, and very hospitable. I never saw anything low or mean in him. As a rule the Dieri being separated from all but their own relations, speak ill of each other; but I never heard any one speak of this man Jálina Piramūrana but with the greatest respect and even reverence.

“I have often watched him distributing presents to all his personal friends with an evident desire to prevent jealousy. I have seen him put a stop to disputes or fights, even chastising the offenders and not infrequently being himself wounded in so doing. On such an occasion there would be great lamentation, and the person who had inflicted the wound on him would usually be beaten.

“He was one of the greatest of the Kūnkis,³ but would not practice his art for their benefit excepting on persons of note,

¹ I have observed that in counting the Yantruwunta used “marapo” as any indefinite number beyond “mandro-mandro” = four.

² See p. 76.

³ As to Kunki, see p. 87.

his personal friends, or the heads of his totems. He rendered great service to me while I was stationed in his tribe."

Jalina Piramurana was the son of the previous headman, who was still living when I knew the Dieri, and was a very strong-looking man above sixty years of age, too infirm to join any of the ceremonies, but who gave advice and often boasted to me that he had the command of the tribe before his son acquired it. He was supposed to be proof again magic spells.¹

It is in the power of the headman to give away young women in marriage or as "Pirauru." I have known cases where a couple could not agree together, and the headman seeing this, after a reprimanding, separated them, giving the young woman to another man and providing another wife for the husband.

Besides the headman of the whole tribe there was also a headman of each murdu (totem), whose power and authority were restricted to it. Jalina Piramurana was the headman of the Kunaura Murdu,² and I have heard him boast of being the "Family of life"—"the stay of life."

Besides the men who were the heads of totems, there were other old men who were the headmen of the various hordes of which I have spoken elsewhere.³ These were the oldest men at each place. The same man, as already explained, might be both head of his totem, and head of the horde. The headman of the horde was spoken of as "Father." This Jalina Piramurana was the headman of his totem, but he was also the headman of the whole local organization. In connection with the question as to the existence of recognized authority among the Australian blacks, the fact is especially valuable that Jalina periodically visited the various hordes of the Dieri, and that they sent to him periodical presents which were acknowledged by him in person or by deputy. Such presents were even sent to him from a distance of three hundred miles by tribes beyond the Dieri boundaries, being passed on from tribe to tribe.

To the southward of the true Dieri country and including the northern terminations of the great range of mountains which extends from Spencer's Gulf and ends in the Freeling Heights, there was a community of blacks which were nearly related to the Dieri, and whose country has been included on the map (Plate I) with that of the Dieri. Mr. Frank James, formerly of

¹ Mūkūeli dūkana, see p. 90.

² Kunaura is the seed of the *Portulacca oleracea*, which at times forms the principal source of vegetable food to these tribes. The seed is ground and made into a kind of porridge and eaten raw, or cooked in the ashes as a cake. Thus cooked its taste reminded me of linseed cake. I have heard this man spoken of as the head of the Manyura totem, that is to say, of the plant itself.

³ See p. 35.

Blanchewater and now an officer in the Victorian Police, in writing to me on the subject of the Dieri, says as follows:—

“There was a black at Blanchewater known as Pompey, a notorious enemy of the settlement of the country by the whites. He belonged to the adjacent Hill blacks, but had fled from his tribe in consequence of his being concerned in the murder of two white men, for hut-burning, and other matters. He ultimately became an influential man in the Blanchewater section of the Dieri tribe. The whites looked upon him as the chief of the Blanchewater blacks, but he only had influence with them through his superior intelligence, and had not any assured position in the tribe.”

Referring to this statement which, with all other information relating to the Dieri tribe, I submitted to Mr. Gason for confirmation, that gentleman says:—

“I personally knew the notorious Pompey, whose true name was ‘Jinabuthina,’ who defied the white inhabitants. He was the supreme headman of the Hill tribe, and was recognized as such, but had no influence with the Dieri. The end of Pompey was that he was shot at a place called Umberatuna by the settlers immediately after he had at the head of about eighty warriors attacked the native camp at that station, killed two friendly blacks, and had threatened the life of the wife of a shepherd. This Pompey had committed many murders and other daring atrocities before he was killed. He was of a very different disposition to Jalina, the Dieri headman, for he was a cruel, remorseless wretch without any feelings of pity. I do not think he had one redeeming feature, unless it might be that looking at him from the standpoint of the natives he was a good fighter. Yet he lacked courage when his life was in danger. He was a good leader and had great influence over his tribe, through his oratorical ability and his supposed power of casting Mukueli dukana.¹

“He had three wives equally ferocious and cruel with himself, a terror to the other women of the tribe, who dared not cross them in word or deed.

“These three women, at the head of a party of other women, were very frequently sent as ambassadors to the heart of the Dieri country, loaded with presents of skins of wallaby, emu, and kangaroo for presentation to Jalina, the great headman of the Dieri. These presents were either friendly offerings or sent to settle some matter of difficulty between the tribes. Pompey only so far as I know went once into the heart of the Dieri country. After his death Jalina often spoke to me about him, and said

¹ See p. 90.

that he had much to thank him for in his position as headman, for Pompey had attended him as an orator and had aided him as a man who was an adept with the shield; but he condemned him for his cruelties to the Yandrawontha tribe."¹

Before speaking of the council of the tribe, I may note that the distinguished men, the warriors, orators, heads of totems, heads of hordes, wore each a circlet of red feathers on their heads as a sign of their position. I do not remember to have seen this in the other tribes, but among the Dieri only.

These men form an inner council within, and distinguished from the general council of the tribe, which is composed of all the initiated men—that is to say, no man has the right of being present at this general council unless he has passed through all the different ceremonies, circumcision, and finally Mindari.²

All the younger men look forward for years to pass through the Mindari ceremony so that they may have the honour of appearing at and eventually the right of speaking in the "great council," as they call it.

Whenever these councils are to be held, men are summoned together by some noted old man nominated for that purpose by the headman.

If it be an important subject that has to be considered, the headman introduces the object of the meeting, and it depends upon him whether the others speak. He adheres to the ancient customs, and if all are agreed the council separates. If they do not agree, the council is adjourned to another time. Everything concerning the council is kept a profound secret from those who have not the right to be present. For over two years Mr. Gason was unable to obtain permission to enter or to see the secret council and its ceremonies. He sought permission in the usual broken English, spoken to blacks by the whites. He tried intimidation, and he had recourse to presents, but it was only when he acquired a command of the Dieri tongue and manners that he was permitted to be present. It was said that Kuchi³ must have instructed him, and as he worked upon their superstitions by favouring this idea, the Dieri at length permitted him to attend their council, and to assist at their ceremonies, until at length he was accepted as a fully initiated man and

¹ The Yantruwunta, as I know the pronunciation. The difference is probably due to Mr. Gason speaking Dieri. The sound of the "th" is not to my ear quite that of our English "the," but more that of "dh." I do not know what these cruelties were, but probably some massacre of the outlying Yantruwunta, who occupied country on the western side of the Grey Ranges, a long narrow strip of country on the eastern borders of that of the tribe (Murdula) of which Pompey was the headman.

² See p. 84.

³ See p. 87.

even was consulted when any great ceremony was about to take place.

I think it will be well to quote Mr. Gason's own words as to the proceedings of the tribal council when he was present :—

“ I have frequently attended by invitation at these councils. On one occasion they gave me permission to speak, and I was thus able to save the life of a man who was being charged with having caused the death of another person. I pointed out that he was at a great distance away from the scene of the death. Two of the members of the council also dared to speak in favour of their friend the accused, and they afterwards made me presents of several bags and weapons for my advocacy of him. Three years after, however, he was cruelly killed by order of the council for an offence which he had not committed, but with which his enemies charged him.

“ After the principal headman has spoken, the heads of totems address the assembly. The manner of speaking is a repetition of broken sentences uttered in an excited manner, at times almost frenzied. Those who coincide with the speaker, repeat his sentences in a loud voice, but no one comments on what he says until his turn comes to speak.

“ The council always breaks up peacefully, but quarrels sometimes follow it, although the camp is not allowed to know the real cause of disagreement, for the secrets of the council are always kept as sacredly as those of a Masonic lodge. The greatest cruelties are threatened to any one of the council who should divulge its secrets, which are many. I have never heard the younger men or the women drop a word which could convey the idea that anything had been communicated to them.

“ I have often been cautioned not to divulge what I had there heard and seen, nor to repeat any words uttered there to strangers until these had convinced me by ocular demonstration that they had passed through the ceremony of Kurawali wonkana.”¹

Mr. Gason has spoken of the manner in which the tribal council deals with offences. These would be *inter alia* doing to death by witchcraft, for instance, by means of the “ bone ” or *Mukuli dukana*, murder, breach of the tribal code of morals,

¹ I remember one of the Yerawaka tribe pointing out to me mysteriously the proof that he had undergone this ceremony. But at the time I knew so little of the language that I could not gather the meaning of the speech. The extreme secrecy observed by the Dieri as to the proceedings of their council of initiated men is paralleled, as I have seen by the coast Murring and Kurnai as to their secret councils on the subject of their ceremonies. I was most forcibly struck by this in these two tribes, which have been completely broken by our civilization. The superficial veneer, which contact with us has given them, hides but does not obliterate their deeply-rooted customs.

offences against tribal custom, and revealing the secrets of the council and of the initiations to the uninitiated or to women.

Offences against the moral code of the tribe would be intercourse with a woman of the same class, or who was too nearly related. Interference with the wives of other men would be merely matters to be revenged by the injured husband by a fight or by the kindred. For instance, if a man desired to obtain a particular woman for a wife, and she being refused to him, he eloped with her, her kindred would make up a party and pursue them. On overtaking them the kindred would take her from him, not necessarily with violence, but if he refused he would be severely dealt with. The prohibition against a man taking a woman of the same class as himself to wife would also prevent him from keeping such a woman should he capture her in warfare, and if he attempted to do so it would be strongly objected to. But he might avoid this by exchanging for some other eligible woman.

Yet this rule which prohibits intercourse with women of the same totem is, according to Mr. Gason, relaxed on the occasion when a mission from another tribe is entertained by the Dieri, or when a neighbouring tribe entertains one sent by them. At such times the prohibition between the totems is relaxed, and there is a time of general license even between those of the same totem, always provided that they be not within the prohibited degrees of kinship.

Cases have occurred within Mr. Gason's knowledge when this law has been broken through threats by some man towards a woman too nearly related to him, and where the woman did not dare to complain, fearing to be charged with having been a consenting party, for it is one of the most serious offences known to the Dieri. To call anyone, man or woman, *Buyulu parchana*¹ is almost the greatest offence that can be offered to a Dieri. It implies that the person is without shame, and disregards the prohibitions which restrain certain relations from each other.

At a council which Mr. Gason attended, at which a young man was charged with having transgressed this law with his *ngatata*, that is to say, the daughter of his mother's sister,²

¹ *Būyūlū* = near relation, *pārchana* = all. The relations of a person are either near or remote. The former are *buyulu*, the latter *wowitcha*. The former includes father, father's brother, mother, mother's sister, son, daughter, brother, sister, brother's child, sister's child. The latter includes, for instance, father's brother's wife, mother's sister's husband, husband's mother's son, and husband's sister's son. These remarks apply to the other tribes herein dealt with, as well as to the Dieri.

² According to the Dieri system of relationship, a daughter of the mother's sister is *ngatata* = younger sister, the "mother's sister" being herself younger than the "mother."

the council inquired into the matter, and finding the charge to be true, the young man was severely punished, indeed almost killed. Indeed he would have been put to death had not some of the influential people in the tribe interfered on his behalf on the ground that he was only a poor idiot who was not accountable for his actions.

It may be mentioned here that the old men in their leisure hours instruct the younger ones in the laws of the tribe, impressing on them modesty and propriety of conduct as they understand it, and pointing out to them the heinousness of incest. The old women also instruct the younger women in this manner.

An instance of what seems to have been the punishment of an offence against the tribe came partly under my own knowledge. On my second expedition I had with me one of the Blanchewater Dieri, and he accompanied me through the country of his tribe northward as far as the Diamantina River, about where Birdville is now situated. He then ran away and made his way back alone to his own people, where I afterwards saw him on my return to the settlements. Some time after I left I learnt from Mr. Frank James that my guide had been killed by an armed party, which chased him for some nine miles before he was overtaken and killed; the reason given for this being that he had been too familiar with the white men and had served them as a guide.

§ 7. *Messengers, Embassies, Expeditions, the Pinya.*

The Dieri do not use the "message stick," but send messages by word of mouth only. It is not necessary with them as with some tribes, *e.g.*, the Wirajuri of New South Wales, that certain messages, as, for instance, those relating to the initiation ceremonies, should be carried by a man of the same totem as the sender.

Messengers were sent to gather people together for dances from distances even up to one hundred miles. Such messengers were painted with red ochre and wore a headdress of feathers.

In calling people together for the ceremonies of Wilyaru or Mindari the messengers were painted with diagonal stripes of yellow ochre, and had their beards tied tightly into a point. They carried a token shaped like a Prince of Wales' feather and made of emu feathers tied tightly with string. The sending of a handful of red ochre tied up in a small bundle signifies the great Mindari or peace festival. In giving notice of the intention to "make some young men," the messenger takes a handful of charcoal and places a piece in the mouth of each person

present without saying a word. This is fully understood to mean the "making of young men" at the Wilyaru ceremony.

Any tokens used to give notice of matters relating to the initiation ceremonies are not allowed to be shown to or made known to women, girls, or boys.

According to Mr. Vogelsang messengers sent to form a Pinya to avenge a death wear a kind of net on the head and a white frontlet in which is stuck a feather. The messenger is painted with yellow ochre and pipeclay, and bears a bunch of emu feathers stuck in his girdle at the back—at the spine. He carries part of the deceased's beard or some balls of pipeclay from the head of one of those mourning for him. These are shown at the destination of the messenger and are at once understood.

Mr. Vogelsang gave me an instance which illustrates this practice. The Pinya was to avenge a death, and the messenger was sent from Kopperamana to a place called Saltcreek. He carried with him a small net called "Yamma." On arriving at his destination and the old men being assembled, he would produce the net in silence, and those present would understand without anything being said that a Pinya was to be made up.

A messenger who is sent to convey the intelligence of a death is smeared all over with white clay. On his approach to the camp the women all commence screaming and crying most passionately. After a time the particulars of the death are made known to the camp. The near relations and friends then only weep. Old men even cry bitterly, and their friends comfort them as if they were children. On the following day the near relations dress in mourning by smearing themselves over with white clay. Widows and widowers are prohibited by custom from uttering a word until the clay has worn off, however long it may remain on them. They do not, however, rub it off, as doing so would be considered a bad omen. It must absolutely wear off of itself. During this period they communicate by means of gesture language.

If the message is to call together a meeting of the elder men of the tribe the messenger would be some noted old man nominated by the headman who sent the message. The same would be the case when neighbouring tribes are invited to attend the ceremonies of initiation. But in any other matters which might be attended by danger or where there was fear of treachery it was not men who were sent but women.

Perhaps the most important messages which were sent by the Dieri are such to neighbouring tribes relating to disputes between them. For such purposes women were chosen, and if possible, those women who belonged to the tribe to which the embassy,

if it may be so spoken of, was sent. Women were chosen for these messages because they would not be treacherously made away with as might be the case with men.

The women sent were usually the wives of heads of totems, and occasionally one of the wives of the principal headman was sent.

The women were accompanied by their *piraurus*, for it was considered by the Dieri that on such missions a man would be more complaisant as to the acts of his *pirauru* than he would be as to those of his *Noa*. For in these missions it is thoroughly understood that the women are to use every influence in their power to obtain a successful issue for their mission, and are therefore free of their favours.

If the mission is successful there is a time of license between its members and the tribe or part of a tribe to which it has been sent. This is always the case, and if the Dieri women failed in it it would be at the risk of death on their return. This promiscuity is not regarded with any jealousy by the women of the tribe to which the mission is sent, but as a matter of course. They know of it but do not see it, as it occurs at a place apart from their camp.

The members of the mission are treated as distinguished guests. Food is provided for them by their hosts, and on their return home after about a week's stay they are loaded with presents. If the mission is unsuccessful the women are sent back bearing messages of dreadful threats.

The mode of announcing a mission, whether by male or female messengers, is by telling it to the headman of the camp alone in a quiet manner immediately on the arrival of the messengers. Nothing is then said further to anyone, but when all are in the camp about the time for retiring to rest, the headman announces their arrival and the object of their mission. There is then an excited discussion upon it, if it be some matter of moment or of general interest, for an hour or two. It is resumed again at break of day, and so on night and morning from day to day until some definite determination is arrived at.

The arguments of the different old men who speak are well noted by the messengers, who, on their return, repeat as nearly as possible the popular sentiments in the tribe they had visited.

Mr. Gason says that he has on several occasions been present on the return of such a mission which had been entrusted to women. The headman and the principal old men received the woman kindly and congratulated them upon their safe return, but Mr. Gason remarks that the headman had an anxious

appearance, and that the old men clutched their spears in an excited manner. No one but the headman spoke to the women on their first return, but on all being seated and after a little while, the old men questioned the women as to the success of their mission. The result was at once told to all the people there camped, who rejoiced if the mission had been successful, but became fearfully excited if it had failed, and seemed to lose all control over themselves, rushing, yelling to and fro, throwing up sand into the air, biting themselves and brandishing their weapons in the wildest manner imaginable.

In cases where the mission was successful women of the other tribe accompanied it back to testify the approval of their tribe of the treaty arrived at.

Such treaties are probably observed quite as faithfully as many treaties more formally made by civilized peoples. During my explorations north of Cooper's Creek, an attempt was made by some of the Yerawaka tribe to surprise my camp at night. As I was most desirous of keeping on friendly terms with these people, I next day went to their camp with a black boy who spoke their language, and I there cautioned the old men against in any way molesting us. I told them I had no desire to molest them, but that if I found any of them near my camp after dark I should shoot them without further notice. The old men were inclined to treat the matter as a joke, but after some further conversation the old men agreed that none of their people should come near our camps at night, and that when doing so in the daytime they were to lay down their arms at a little distance. On my part I promised to do them no hurt in any manner. This agreement was kept by them, and I observed that not only they, but their neighbours also, laid down their weapons when visiting my camp.

As the Dieri send missions to the surrounding tribes so do these when occasion requires it and then the proceedings are such as have been detailed.

It may be here noted that a Dieri [if of no note or influence, arriving at a camp after a considerable absence, takes his seat near the camp without saying anything. After remaining silent a few minutes, the old men alone gather round him and ask him where he comes from and what has befallen him. He then unfolds all his news and often does not fail to embellish. Then two old men stand up, one retailing it and the other repeating the sentences in an excited manner. The new-comer, if he is a stranger, is hospitably entertained.]¹

¹ In writing to me many years ago, the Rev. H. Vogelsang said of the Dieri: "The question Mina Murdu? relates to eating and hospitality. For instance, blacks from a distance arrive here (Kopperamana), and the question is asked

I remember being one night near to a small "mob" of friendly Yerawaka some distance to the north of Cooper's Creek, and only separated from their encampment by a rather narrow, though deep water channel. I could watch all their movements by the light of their fires, and hear what was spoken in a loud tone. The evening was spent in great feasting by them. A stranger had arrived from the south, probably, as I now see, a Dieri, and his news was retailed in a loud tone to the people of the camp, and as I now remember it it seemed to me to have gone on for hours. The women were busy till late at night preparing food by pounding and grinding seeds of the Nardoo and Manyura. My black boy, who listened with great interest to the speeches, told me that this man was a "walkabout black fellow," in other words a messenger who had arrived from the south and was telling them the news.

[A man of influence arriving at one of the camps of his own tribe is received by the inmates with raised weapons as if in defiance. Upon this the visitor rushes at them, making believe as if to strike them, they warding off his feints with their shields. Immediately after they embrace him, and lead him to his camp, where the women shortly after bring him food. If he visits a neighbouring tribe he is received in the same manner.]

I observed with much interest during my explorations south of Sturts Desert, and in the Yerawaka country, how my party was ceremoniously announced by one of the Yantruwunta tribe who accompanied me, and so to say accredited us. On arriving within shouting distance of the camp, the guide halted us, and breaking off a branch of a tree or of a bush, went forward somewhat nearer to the group of old men who had come from their camp towards us. The guide, waving the branch, shouted out that we were travelling peaceably. Some conversation upon this took place in a loud tone of voice between him and one of the old men. Matters having been thus satisfactorily arranged, the old men came forward and conducted us to a place adjoining the water where we were to make our camp, facing their encampment. They then sent some of the younger men to gather wood for us.

On this trip I was taken by Yerawaka guides obtained near this place from camp to camp, through a great part of the tribe round by Lake Lipson in the most friendly manner.

If visitors are expected, and it is thought that they may not know exactly where the camp is, smoke signals are used. These

Mina Murdu? meaning 'What are you?'—Bird, Kangaroo, Rat, Mouse, as the case may be. All those of the same name live then in the same huts, eat together, live together, and even lend each other their women."

are also used to call attention of distant parties with whom the smoke-maker wishes to communicate.

I observed such smokes as these when out in the Yandairunga country south-west of Lake Eyre, which then, in the year 1857, had not long been discovered by Stuart. Almost daily I observed columns of smoke rising from the flat-topped ranges common there. These signals were, I then thought, made to attract attention of other Yandairunga to the strangers travelling in their country.

The Dieri also sent out periodically parties, consisting exclusively of men, for various purposes. All the tribes in this part of Central Australia, and indeed far beyond it, use as a narcotic the dried twigs of the pitcheri bush.¹

The Dieri sent an expedition of able-bodied men annually to the pitcheri country on the Herbert River in Queensland, a distance of some 250 miles. This party has to pass through several hostile tribes on its journey, and must fight its way if necessary. On arriving at the pitcheri country, the leaves and small twigs of the bush are carefully picked off. Small holes two feet deep are dug in the sand, and heated with live coals. The pitcheri is then put in the holes after they have been cleaned out and is covered up with hot sand and baked. When the sap has been evaporated the pitcheri is taken out and packed up neatly in netted bags and small wallaby skins, each man carrying about 70 lbs. weight.

Great preparations are made by the Dieri tribe for the return of their pitcheri expeditions. New huts are made, seeds of the season are stored up² for their fathers, brothers, husbands and friends. When the expedition returns its members are full of strange stories of the battles they have fought, of tribes they have seen, who have toes on their feet behind as well as in front,³ and all kinds of wild and extravagant reports. There is great rejoicing over the safe return of the party. The pitcheri, although brought from so great a distance, and obtained under such great difficulties, is all gone after a few months, being bartered away to the more southern tribes.⁴

¹ *Duboisia Patersoni* (Lind).

² At Lake Lipson I observed hampers made of twisted grass, daubed inside with clay, used for containing about half a bushel of the seed of the Manyura (*Portulacca oleracea*).

³ *Tidna-munka-munka*. I suspect that these tales refer to those more northern or north-western tribes who use a kind of sandal, made, I believe, of emu feathers, thus not leaving any, or scarcely any, track.

⁴ A system of barter spread all over the interior of the continent. The Dieri bartered weapons with their southern neighbours for the skins of kangaroos; and with northern and eastern tribes for their shields. Ornamental belts were also exchanged, and I once observed the single valve of a large marine shell, which must have been passed on from tribe to tribe, probably from the northern coast.

Mr. Gason tells me that when the Dieri expedition returned he used to obtain as much as six bags, weighing each three pounds, for one shirt. As soon as the pitcheri became scarce, the leading men would come to him bringing all kinds of weapons as presents for a small quantity, begging him to give them "one little chew"—*pitcheri waka jinkeami*.

I found the use of pitcheri very common with the Yantruwunta at Cooper's Creek. I had frequently a quid of pitcheri offered me fresh from the mouth of a friendly black fellow, and I have obtained it in an unchewed state done up in small closely netted bags made of grass twine and human hair. The Yantruwunta told me that they travelled about ten days' journey, and they pointed to the north-west as the direction. This might give a distance of from 150 to 200 miles, and would roughly agree with the position of what is now known as the 'Pitcheri country.' The Yantruwunta mixed their pitcheri with the dried leaves of a bush called by them "Wira," which grows plentifully on the sand hills in parts of their country. The Wira is prepared by breaking off small twigs and drying them in the hot ashes. They are then broken up and mixed with the pitcheri for chewing. The use of pitcheri was known not only to the Cooper's Creek tribes but also as far as least as the Barrier Ranges in New South Wales.

In July or August in each year the Dieri also sent out another expedition southwards to procure red ochre. This was always regarded as being a perilous expedition accompanied by many dangers and privations. The party had to travel three hundred miles and back, through the country of hostile tribes, keeping strict watch every night and having to procure their food as they travelled, and on their return journey each man carried from 60 to 100 lbs. weight of artificially made up red ochre. The men were all picked, and the expedition was under the guidance of some great leader. The men were marked each with three stripes of red ochre and with three black ones of micaceous iron ore immediately under the former across the abdomen. Two marks of the same were drawn across the arms. Each man had all the hair of his beard and moustache plucked out and the hair of his head cut short before he started.

Mr. Frank James tells me, speaking of the Blanchewater section of the Dieri tribe, that the annual expedition down the western plains for red ochre was one of the most important duties of the tribe. Some seventy or eighty of the pick of the fighting men went on this trip, all well armed, and they fought with and killed all the blacks who dared to oppose them. The ochre was kneaded into large cakes and was carried back for use as

war paint, for charms, &c., and it was one of the principal articles they gave in exchange to the other tribes beyond them for spears, shields, and other weapons.

The Yantruwunta gave me a similar account of their annual expedition to fetch red ochre, but also for the slabs of sandstone on which they grind their seeds for food. The locality to which they resorted for these things must have been, to judge by their statements, far down on the western side of the Flinders Range; the distance must have been over three hundred miles. They told me that the party could not stop two days in any one place on the journey, but had to fight its way there and back, and to hunt for food as well. The flagstones used for grinding seed upon were procured somewhere near to the red ochre mine. Each man carried back either a slab of sandstone or a lump of ochre on his head.

A third party which the Dieri sent out was the dreaded Pinya. It was the avenger of the dead, of those who were believed to have been done to death by sorcery, such as the "bone." I have already said something of it when speaking of the manner in which messages are delivered.

The appearance at a camp of one or more men, marked each with a white band round the head, with diagonal white and red stripes across the breast and stomach, and with the point of the beard tied up and tipped with human hair, is the sign of a Pinya being about. These men do not converse on ordinary matters, and their appearance is a warning to the camp to listen attentively and to reply truly to such questions as may be put concerning the whereabouts of the condemned man. Knowing the remorseless spirit of the Pinya, any and every question is answered in terror.

I have no direct evidence of the Pinya having been in force at Cooper's Creek, but I think it almost certain that it was. The tribes there were intimately connected with the Dieri, and their language and customs generally were the same. Moreover I remember meeting men there painted and with their beards tied up, as described to me by Mr. Gason.

There is a curious custom among the Dieri which may find its record in this section. It is called Yũtchin. When a black fellow is going to a distance from home either to one of the hordes or the lesser divisions, or to a neighbouring tribe, some one at his camp becomes his Yũtchin. This is done by placing a string of human hair or of native flax round his neck to remind him of his promise to bring back presents. It then becomes his duty to bring back with him articles for his Yũtchin, who, while he is away, also collects presents for him. Under no circumstances is such a pledge broken, for if a person failed in it he would

have all the men in the camp at him, and he would be called and considered an untrustworthy man. Mr. Gason tells me that he has often been the Yŭtchin of some Dieri men, giving them old wearing apparel, and receiving from them in return carved weapons and ornamental articles. This practice is used for bartering. For instance, if a man saw a carved boomerang which he desired, he would say to the owner of it, "I will give you such and such things for it if you will be my Yŭtchin." If they agree they become Yŭtchin, and the one man, after some trip to an outside camp of the tribe or elsewhere, returns with the things bargained for, hands them over, and the exchange is made. When people see a Dieri man or woman with a string about his or her neck it is said, "For whom are you Yŭtchin?" A son may be Yŭtchin for his father; for instance, a father may promise to make some boomerangs for his sons while they are out hunting for him. Whatever they catch, no matter how much it is, they on their return hand to him, and the women flock round to see what kind of Yŭtchin the boys have been. The boomerangs are, of course, made and handed over at once. Mr. Gason has seen little boys of from seven to ten years of age coaxing their father to make them boomerangs, promising to be his Yŭtchin.

Mr. Gason always had several Yŭtchin, and when he heard of blacks about to visit a neighbouring tribe he sent for them, and giving them presents, they would request him to place a cord round the neck of each, as Yŭtchin. On their return they brought him presents in return, such as carved weapons, ornamental bags, &c.

§ 8. *Initiation Ceremonies.*

The initiation ceremonies of the Dieri tribe, as will be seen from the following account, which is compiled from Mr. Gason's communications, differ very materially in detail from those of more eastern tribes of which the Kuringal of the Coast Murring, elsewhere described by me,¹ may be taken as an example. The Dieri ceremonies are typical of those of the kindred tribes which are referred to in this memoir, and I find that they even extend, in a modified form, while still retaining the blood-letting ceremony under its name of Wilyaru, to the Adajadŭra tribe of Yorks Peninsula. So far as I am aware at present the peculiar rite which, to use the Dieri term, may be called Kŭlpi, seems to be confined to such tribes as practice circumcision. If, there-

¹ "On some Australian Ceremonies of Initiation," "Journ. Anthropol. Inst.," May, 1884, vol. xiii, p. 432.

fore, a line be drawn from the Murray mouth northwards to the Gulf of Carpentaria, it will roughly denote the boundary between the two types of initiations. To the west of this line circumcision and Kūlpī are found; while to the east of it initiation ceremonies of the Kuringal (Bora) type prevail. It must be understood, however, that this line is no more than a rough approximation, and that either type may be found in places within the general limits of the other.

It is the principal headman (Pina Pinaru) of the tribe who decides when youths shall be passed through the various stages of the initiation ceremonies. That is to say, he decides upon the time when he finds that there are a sufficient number ready. The matter is, of course, brought by him before the Great Council, but he decides so far as concerns the time and place and as to which youths are to be initiated.

The knocking out of teeth, as practised in this tribe, is performed at an earlier period than in tribes having the Bora ceremonies; that is to say, at an earlier period in the course of initiation, and is not confined only to the boys.

[When a child is from eight to twelve years of age the two front teeth of the upper jaw are taken out in the following manner:—Two pieces of the Cooya Mura tree, each about a foot long, are sharpened at one end to a wedge-like shape, then placed on either side of the tooth to be extracted, and driven in tightly. A piece of wallaby skin folded two or three times is then placed against the tooth. A piece of wood, about two feet long, is placed against the wallaby skin and struck with a heavy stone. Two blows suffice to loosen the tooth, which is then pulled out by the hand. This operation is repeated on the second tooth. As soon as the teeth are extracted a piece of damp clay is placed in the holes to stop bleeding. The boy or girl, as the case may be, is forbidden during the ceremony, or for three days after, to look at the men who were present, but whose faces were turned from them. It is thought that a breach of this rule would cause children's mouths to close up, and consequently that they would not be able to eat afterwards. The teeth drawn are placed in the centre of a bunch of emu feathers, smeared with fat, and are kept for about twelve months under the belief that if thrown away the eaglehawk would cause larger ones to grow in their place, to turn up over the upper lip, and cause death.]

The teeth being carefully wrapped up with emu feathers are kept by the boy's father, or the nearest relatives, until the mouth is completely healed, and even for long afterwards, when the father, accompanied by a few old men, not necessarily men of consequence, dispose of them as follows:—The father makes a

low rumbling noise, not using any words, blows two or three times with his mouth, and jerks the teeth through his hand to some little distance. He then buries them about eighteen inches under the ground. The jerking movement is intended to show that he has thereby taken all the life out of them, as should he fail to do so the boy would be liable to an ulcerated mouth, impediment in speech, a wry mouth, and ultimately a distorted face.

A belief is here shown in an intimate connection between the teeth and the person from whom they were extracted when even at a distance, and after a considerable lapse of time. Such a belief is not peculiar to the Dieri. The Murring also hold it. When I returned from the Kuringal of that tribe, which I have elsewhere described, I took with me, in the character of the headman who had caused the ceremonies to be held, the teeth which had been knocked out. In the proper course of events it would have been my duty to hand them to one of the other headmen, who would then again send them on, until having made the round of the whole district from which the people who attended the ceremonies had come, the teeth would ultimately return to their former possessor and be retained by him.

Nearly twelve months after my return one of the principal Murring men came to me, having travelled some 300 miles from his home on the southern coast of New South Wales. His errand was to fetch back the teeth, and he explained that he had been sent for them because one of the boys had fallen into ill-health, and it was believed that the teeth had received some injury and had affected him. He received the teeth from me with an assurance that they had been placed in a box apart from any substances, such as "quartz crystals," which could influence them. He returned home, bearing the teeth with him carefully wrapped up and concealed.

Kūrawéli-wónkana,¹ or the ceremony of circumcision, is performed when a boy is about nine or ten years of age. The public proceedings are commenced by a woman walking up to a youth in the early part of the evening and quietly slipping a string made of human hair over his head, to which is attached a mussel shell (Kūri). This woman is a married woman, not of his totem or class or in any way related to him. This is usually the commencement of a row. Neither the boy nor his father have been previously made aware of what is intended. Directly the boy finds the shell suspended round his neck he jumps up and runs out of the camp. His father becomes

¹ Kūrawéli = boy ; wónkana = singing.

enraged, for it is generally the case that fathers think their sons too young to undergo the painful operation. Becoming enraged he attacks the elders and a general fight results.

From the moment the boy rushes out of the camp until several months after the circumcision, excepting the night immediately before the ceremony, no woman is supposed to have a sight of him. The night before the circumcision all the women see him for a few minutes only.

At this time all the available tribespeople are collected, and, as has been stated at p. 56, there is for the time unrestricted intercourse between those who are *pirauru* to each other. Afterwards this gives rise to many bloody quarrels, but they dare not speak of what is done at the *Kuraweli-wonkana*, fearing severe punishment for trying to undermine and tamper with their established rules. [Immediately before the boy is circumcised a young man picks up a handful of sand and sprinkles it as he runs round the camp. This is supposed to drive out *Kuchi* and to keep *Muramura* in.

As soon as the circumcision has taken place the father of the boy stoops over him, and fancying himself inspired by *Muramura*, gives him a new name. He is then taken away by some young men and kept away for several months.

The next ceremony after circumcision is that called *Wilyaru*. A young man without previous warning is led out of the camp by the old men. On the succeeding morning the men, old and young, except his father and elder brothers, surround him, directing him to close his eyes. One of the old men then binds the arm of another old man pretty tightly with string, and with a sharp piece of flint lances the vein about an inch from the elbow, causing an instant stream of blood, which is allowed to play over the young man until he is covered with it, and the old man is exhausted. Another then takes his place, and so on until the young man becomes quite stiff from the quantity of blood adhering to him.] The reason given for this practice is that it infuses courage into the young man, and also shows him that the sight of blood is nothing, so that should he receive a wound in warfare he may account it as a matter of no moment. The next stage in the ceremony is that [the young man is told to lie down on his face, when one or two young men cut from three to twelve gashes on the nape of his neck with a sharp piece of flint.] These, when healed into raised scars, denote that the person bearing them has passed through the *Wilyaru*. Should you ask a *Dieri* whether he is *Wilyaru* he will point with pride to the scars on his neck. Until the scars are healed the youth must not turn his face to a female, nor eat in the sight of one.

Immediately after the ceremony of Wilyaru a wooden instrument is given to the youth. It is called "Yūntha," and is from 6 to 9 inches long, $\frac{1}{16}$ inch thick, and from 2 to 2½ inches wide. It has notches at each side.¹ It has a small hole at one end, to which is attached a string about 10 to 12 feet long, made either of native flax or human hair. On the Yuntha being whirled round the head it makes a loud humming sound.

The Yuntha is never seen by the women, and they do not know what causes the sound made by it. The men tell them that it is Muramura inspiring the young man to make the noise, and that this shows that he is satisfied with the Wilyaru ceremony. It was some time after Mr. Gason was initiated in the Dieri ceremonies that the Yuntha was shown to him, and he was required to promise never to show it to women, or to let them know that he possessed one.

A Yuntha which has been used at the Wilyaru is marked with a number of small notches on the side at one end. If by chance a Yuntha is lost, the finder examines it to see whether it bears any notches; if it has, he carefully secretes it and acquaints the elders of his find. If there are no notches he treats it just as a plain piece of wood, and he may even carry it to the camp and make a joke of it. The Yuntha is one of the most important secrets of the tribe, and the knowledge of it is kept inviolate from the women. The belief is that if the women were to see a Yuntha which had been used at the ceremonies and know the secret of it, the Dieri tribe would ever afterwards be without snakes, lizards, and other such food.

Mr. Gason tells me that when he was initiated he was required to promise that he would keep all their secrets, and never, even by a tracing on the ground, to show the Yuntha to women. When the Yuntha is given to the youth he is instructed that he must twirl it round his head when he is out hunting. The Dieri think that when the Yuntha is handed to the young Wilyaru he becomes inspired by Muramura, and that he has the power by whirling it when he goes out in search of game and before his wounds are healed, to cause a good harvest of lizards, snakes, and other reptiles.

The young man is never seen by the women from the time when he is made Wilyaru until he returns to the camp, after perhaps many months. All the blood which was caused to stream over him has worn off, and the gashes are thoroughly healed before he shows himself at the camp. All his near female relations⁽²⁾ become very anxious about him during the time of his

¹ One in my possession, for which I have to thank Mr. Gason, has plain edges.

² *Buyulu-parchana*. These are those whom the Dieri regard as being too

absence, often enquiring as to his whereabouts. About a week after the ceremony, and at night, he approaches the camp, providing the night is very dark, and there is no moon, and commences twirling the Yuntha, causing a loud noise. When this is heard the men, excepting the elders, go out and visit him, carrying with them food which the women have prepared. They cheer up and encourage the young Wilyaru. He now departs again, accompanied by a few young men who have already been made Wilyaru. They keep him company as he cannot come to the camp, nor may he even be seen by the women until his wounds are healed.

There is a great rejoicing when the Wilyaru finally returns to the camp. He is made much of, especially by his "mothers" and his "sisters,"¹ but he is prohibited from speaking to any of the actual operators in the Wilyaru ceremony until he has given some kind of present to each. As he hands the present to one of the operators he is in return told that he may now speak. This custom is carried out strictly. Mr. Gason says that he never witnessed a Wilyaru ceremony without receiving a present from the youth, and he never could in the case of those who had been through this, or the previously described ceremony, induce one of them to speak until after the present had been given to him.

[After enduring the ordeal of the Wilyaru, the next ceremony he has to go through is that of the Mindari, which is held about once in two years by the Dieri or by the neighbouring tribes. When there are sufficient young men in the tribes who have not passed this ceremony, and each tribe being on friendly terms with the other, a council is held to determine time and place. This being appointed, women are sent to the neighbouring tribes to invite them to the ceremony, the preparations for which, building huts, collecting food, and the arrangements generally occupying from six to seven weeks. Every day witnesses fresh arrivals of men, women, and children, and as soon as the first members of the arriving party come in sight the Mindari song is sung to show the strangers that they are hailed as friends. At length, all having arrived, they wait for the full of the moon so as to have plenty of light during the ceremony, which commences at sunset. Meantime at every sunrise and at intervals all the men in the camp join in the Mindari song.

On the evening of the ceremony the young men are dressed carefully, the hair of the head being tied with string so as to stand straight up, and the tails of rats (Thilpa) are fastened on

nearly related to marry. The term "blood relations," which my correspondents will persist in using, is misleading; "prohibited relations" would be better.

¹ See § 4 on "Relationships."

the top. Feathers of the owl and the emu are fastened to the forehead and ears, and a large Yinka or girdle made of human hair is wound round the waist. The face is painted red and black.

All the men, women, and children now begin to shout with the full force of their lungs for about ten minutes. They then separate, the women going a little way from the camp to dance, while the men proceed to a distance of about 300 yards, the site selected being a plain, generally of hard ground, which is neatly swept. A little boy of about four years of age opens the ceremony, being tricked out all over with down of the swan and wild duck, bearing a bunch of emu feathers on his head and having his face painted red and white. He dances into the ring, the young men following him, and they followed by the old men. The dance is kept up for about ten minutes, when the boy stops the dance by running off the dancing ground.

All the young men then go through many extraordinary evolutions, and this is continued until sunrise, when, all being tired, the ceremony is closed and they retire to sleep during the day.

The reason for holding this ceremony is to enable all the tribes to meet and to amicably settle any dispute that may have arisen since the last Mindari.]

Connected with the initiation ceremonies but evidently not essential as regards all the initiated, is a most remarkable operation to which some are subjected, and which is called by the Dieri Kūlpi.¹ This is a convenient word for this rite, and I shall therefore use it both for the proceeding itself, and also for the person who has been affected by it. I have before said that a line drawn from the Murray mouth to the Gulf of Carpentaria roughly separates the area where circumcision is practised from that where it is not known. The same line will serve to show also the boundaries of the Kulpi practice. I have several accounts from correspondents in the Western half of the Australian Continent giving me a detailed account of this matter, but from no one have I received a more complete account than from Mr. Gason, which is as follows:—

At the secret council at which the circumcision ceremony is determined upon, the headman and the heads of totems fix upon certain youths to become Kulpi, while deciding that other youths shall not be Kulpi. Certain men are nominated to see the decision carried out, and they are responsible to the headman for the proper incision being made, clean, straight, and without any unnecessary violence.

No warning or notice is given to the young man. He goes

¹ Mr. E. M. Curr in his work, "The Australian Race," calls this "the terrible rite."

out on some day hunting with others, who at a certain signal being given by one of the party, suddenly pinion him from behind, and throw him down. The young man naturally struggles most violently, thinking they are about to murder him, and calls out for his father and mother in a most piteous tone,¹ until his mouth is covered over with someone's hands. Other men who have been lying concealed now rush up and tell him not to be frightened, for that they are only going to make a Kulpi of him.

If, however, in spite of this he continues to struggle, they beat him severely on the head to quieten him. As a rule he submits, finding himself in their power and moreover that his life is not in danger. The old men and the bystanders encourage him by saying that he must not mind the pain, for that it is nothing to what he has suffered through circumcision. During the operation, which lasts about twenty minutes, the old men continually cheer him up to keep him steady, but many youths faint after the operation is over.

Mr. Gason mentions one case where a young man struggled most violently during the operation. Large drops of sweat broke out on his forehead, and tears flowed from his eyes; yet he did not utter a sound or a murmur until it was over, when he uttered a deep groan and several deep sighs, and gradually fell back into the arms of the men who were holding him. The wound was stanchd with sand. Mr. Gason lost sight of this young man for about four months. When he again saw him he looked healthy, active, and smart, and the wound was quite healed up. He presented him with a carved boomerang and a few trinkets, making signs to Mr. Gason to accept them. He, knowing the custom in such cases, took them, and it was only then that the youth ceased to be *apū-apū*, or dumb, and spoke to him. For the Kulpi, as is the case with the Kuraweli wonkana, or the Wilyaru, may not speak until he has given presents to those present at the time. It may be many months before a young man is able to meet with all those to whom he is bound to present something as being either operators or witnesses. It is thought that the presence of a distinguished man, such as a warrior, a head of a totem, &c., at the operation tends to give strength to the young man while undergoing it.

It is only when a young man has been made Kulpi that he is considered to be a "thorough man," and in this sense that Kulpi is the highest stage of the initiation ceremonies.

A Kulpi has the privilege, and he alone, of appearing before

¹ The custom of crying out for their father or mother when in pain, or suffering of any kind, is universal with the Dieri. Mr. Gason says that it arises from a feeling of respect and honour for their parents, which is a marked and admirable trait of these people.

the women in a perfectly nude state. It is to the Kulpis that important matters bearing on the welfare of the tribe are entrusted, and they always take precedence of the other men who are not Kulpi. They hold in fact the most important positions, and powerfully influence the government of the tribe.

The headman, Jalina Piramurana, in complimenting a Kulpi on the satisfactory manner in which he had accomplished some mission or matter which had been entrusted to him, was accustomed also to refer to his being a Kulpi.

All men sent on special missions to other tribes are Kulpi. It would never be even thought of to send a non-Kulpi in charge, as he would not carry much weight or have such influence as a Kulpi.

Men often express regret that they were not Kulpi, feeling some jealousy of the superior position of those who are so distinguished, for the Kulpis also take precedence at the grand corroborees, where they are the principal leading dancers and also as "masters of the ceremonies" generally.

The Dieri say, according to Mr. Gason, that the object of the Kulpi operation is "cleanliness," and that without it no one can be a "thorough man."¹

On the young women coming to maturity there is a sort of ceremony called Wilpadrina. At it the elder men have a right to their young women, and exercise it, the other women being cognizant of it, and being present.

§ 9. *Doctors and Wizards.*

The Kūnki, or as he is generally called by the whites, the "Doctor," is supposed to have direct communication with two spirits, Kūchi and Mūra Mūra. He interprets dreams and reveals to the relatives of the dead the person by whom the deceased has been killed. If a Dieri has a dream and fancies he has seen a departed friend during the night, he reports the circumstance to the Kunki, probably not omitting to embellish the account. The Kunki perhaps declares that it is a revelation and not a mere dream, and announces it in the camp in an excited speech. For the Dieri distinguish between what they consider a vision and that which is a mere dream. The latter is called Apitcha, and is thought only to be a fancy of the head.

¹ There are many circumstances connected with the Kulpi practice which, although unfit for publication, ought to be placed on record in some way. I have sent some in manuscript to Dr. E. B. Tylor. The Rev. L. Fison informs me that the Kulpi is performed by certain Fijian tribes as a surgical operation in cases of wasting sickness.

The visions are attributed to Kuchi, a powerful malignant spirit who gives to the Kunki his power to produce disease and death, or to heal that which some other Kunki has caused. If the Kunki declares that the sleeper had a real vision of his dead friend, he may order food to be placed for the dead, or a fire to be made so that his spirit may come and warm itself. But it depends much upon the manner in which the interpretation is received by the elders whether the Kunki follows it up. The Kunki also professes to cure disease. Jalina Piramurana was a noted Kunki, as was his father before him, but he would not exercise his power excepting on behalf of persons of note.

On one occasion Mr. Gason caught cold attended by fever. Jalina, hearing that he was ill, sent down to ask permission from the other troopers to "drive Kuchi out of the police camp," before he came to examine Mr. Gason as his patient.

When one of the Dieri dies, whether man, woman, or child, there is always a kind of inquest on the body, as no one is believed to die from natural causes.

The corpse having been tied together and being enveloped in a skin rug [is carried to the grave on the heads of three or four men, and on arrival is placed on its back on the ground for a few minutes. Then some men kneel down near the grave while others place the corpse on their heads. One of the old men, usually the nearest relative, now takes two light rods called "Kūnya," each about three feet long, and holds one in each hand, standing while doing this about two yards from the corpse. Then beating the rods together he questions the deceased as to who was the cause of his death, and asks the name of the person who killed him, for they attribute death to some spell or charm exercised by an enemy. The men sitting round act as interpreters for the defunct, and according as opinion prevails the name of a man of some other tribe is given. When the old man ceases to beat the rods together the men and women round commence crying and the body is removed from the heads of its bearers and is lowered into the grave, in which there is a man not related to the deceased, who proceeds to cut off all the fat adhering to the muscles of the face, thighs, arms, and stomach, and passes it round to be swallowed by some of the near relations in order that "they may not be continually crying about the dead,"] and thus become a nuisance to those in the camp. All those who have eaten of the corpse have a black ring of charcoal powder and fat drawn round the mouth. The legend runs that this was ordered to be done by Mura Mura, and further that this mark should be maintained for two or three days after the death in order that any strangers arriving might

be made aware by this sign of the death, and thus avoid a chance of hurting the feelings of the survivors. This black mark is called "mūna mūrū-mūrū," or "black mouth."

[The order in which the relatives partake of their dead relatives is this. The mother eats of her children, and the children of their mother.] A man eats of his sister's husband and of his brother's wife. Mother's brothers, mother's sisters, sister's children, mother's parents, or daughter's children are also eaten by those to whom the deceased stands in such relation. [But the father does not eat of his children nor do the children eat of their sire.]

When all is completed the grave is filled in and a large stack of wood is placed over it. Invariably after a death the Dieri shift their camp and never after speak of or refer to the defunct.

It is thought that when a person dies the spirit ascends Pūri-wilpana, or the sky. It can also roam the earth but cannot become visible, except in visions. Food is placed at the grave for many days, if the dead person was one of influence, and if in the winter months a fire is lighted in order that the ghost may warm itself. The ground round the grave is carefully swept, and Mr. Gason has often heard the Dieri declare that they had seen the tracks of the deceased, although they could not see the spirit itself. Should the food not be touched it is thought that the spirit was not hungry.

They also think that the ghosts can take up their abode in ancient trees and therefore speak with reverence of these trees, and are careful that they shall not be cut down or burned.

The Dieri never wish to die, and consider that they are punished by Mura Mura during life for any offence.

No trinkets, weapons, or decorations are buried with the corpse, which is merely rolled up in any old wrapper which might have been around it when death occurred.¹ For months after a death the near relatives are smeared over with white clay. They are forbidden to speak a word, and if they want anything they ask for it by signs, and if spoken to they reply in the same manner. The women mourn and are speechless much longer than the men. Great sympathy is felt for those who are in mourning, and their friends seeing them thus will often burst out into genuine tears of grief for them.

[As no one is supposed to die from any cause other than the machinations of some one in his own or a neighbouring tribe, so

¹ I was much struck with the almost complete absence of anything like coverings, as for instance skin rugs, among these tribes. The Dieri obtained the skins of wallaby and kangaroo from the hill tribes south of them; but the Yantruwunta and Yerawaka had none. I once saw a pelican skin used as a covering by a very old woman, and this was quite exceptional.

men, women, and children are in constant terror of having offended some one who may therefore bear enmity to them.¹

One of the most common spells which it is supposed can be used is that known as "Müküeli dūkana," from Muku=bone, and dūkana=to strike. Therefore, so soon as a person becomes ill, there is a consultation to find out who has "given him the bone." If the sick man does not get better, his wife, or if he has not got one, the wife of his nearest relative, accompanied by her pirauru, is ordered to go to the person suspected. This she does, and makes the person a few presents without saying more than that her husband (or so and so) has fallen ill and is not expected to recover. The man knowing by this that he is suspected, usually tells the woman that she can return to her relative, as he will withdraw all power from the bone by steeping it in water. If the sick man dies, and especially if he happens to be a person of importance, the suspected man is certain to be killed.]

This bone is the small one of the human leg. When the tribe desires to kill some one at a distance, Mr. Gason has known the principal men join in pointing these bones wrapped in emu feathers and fat in the direction of the intended victim, and at the same time naming the death they wish him to die.

All present are bound to secrecy, and the incantation lasts about an hour. Should they learn after a time that the man continues alive and well they explain it by saying that some one of his tribe stopped the power of the bone.

The practice of "Rain-making" is in Australian tribes usually in the hands of some of the wizards. I have elsewhere given particulars as to other tribes.² With the Dieri the procedure is somewhat different, and is taken part in by the whole tribe or by some part of the tribe under the guidance and direction of some of the Kunkis or wizards. Mr. Gason has given the following account of the rain-making ceremony :—

The sky is supposed by the Dieri to be a vast plain inhabited by wild savage tribes between whom and the people of the earth there is no connection. Some of the departed inhabitants of this earth are supposed to live up there in hideous forms such as snakes with feet. The Kunkis sometimes relate their midnight wanderings (night-mare) in the sky in the forms of crows, snakes, and other wild fancies. But they do not profess to see these inhabitants of the sky otherwise, or to hold any communication with them.

The sky is called Pūri Wilpanina, or the Vast Hole. The

¹ I think Mr. Gason's statement must be so far modified as to exclude death at the hands of the Pinya.

² "On Australian Medicine Men," &c., "Journ. Anthropol. Inst.," August, 1886, vol. xvi, p. 23.

Milky Way is called Kai-iri, or the Creek, Orion's Belt is the Munkarawa, or the woman, and clusters of small stars are called Munkara Walkawura, or the young women.

The clouds are supposed to be bodies in which rain is made either by the ceremonies of the Dieri or of the neighbouring tribes, through the influence of Mura Mura. The clouds are called Thūlara-paulka, or the body or substance of rain.

In times of severe drought I have witnessed them calling upon Mura Mura to give them power to make a heavy rainfall, crying out in loud voices the impoverished state of their country and the half-starved condition of the tribe in consequence of the difficulty in procuring food in sufficient quantity to sustain life.

During such drought, to which the Dieri country is much subject, the rain-making ceremonies are considered of great consequence, and I have witnessed them many times.

When it has been determined by the Great Council that such a ceremony is to be held [women, accompanied by their Piraurus, are sent off to the various sub-divisions of the tribe to summon the people to attend at some appointed place. When the tribe is gathered together they dig a hole about two feet deep, twelve long, and from eight to ten feet wide. Over this they build a hut of logs, filled in with slighter logs, the building being conical in form and covered with boughs. This hut is only sufficiently large to contain the old men, the younger ones sitting at the entrance or outside. This being completed, the women are called together to look at the hut, which they approach from the rear, then dividing, some one way and some the other, they go round until they reach the entrance, each one looking inside but without speaking. They then return to their camp distant about 500 yards.

Two Kunkis, who are supposed to have received a special inspiration from Mura Mura, are selected to have their arms lanced. These are tightly bound near the shoulders to prevent too profuse an effusion of blood. This being done all the men huddle together in the hut, and the principal Kunki in the tribe takes a sharp flint and bleeds the two men inside the arm below the elbow. The blood is made to flow on the men sitting round, during which the two men throw handfuls of down into the air, some becoming attached to the blood on the men and some floating in the air. The blood is supposed to symbolise the rain, and the down the clouds. During these proceedings two large stones are placed in the centre of the hut. They represent gathering clouds, presaging rain. At this period the women are again called to visit the hut and its inmates, and having seen them again retire.

The main part of the ceremony being now concluded the men who were bled carry the two stones away some ten to fifteen miles and place them as high as they can in the largest tree about. In the meantime the other men gather gypsum, pound it fine, and throw it into a water hole. Mura Mura is supposed to see this and thereupon cause clouds to appear in the sky. Should these not appear so soon as expected, it is accounted for by saying that Mura Mura is angry with them, and should there be no rain for weeks or months after the ceremony it is supposed that some other tribe has stopped their power.]

After the ceremony the hut is thrown down by the men, old and young, butting against it with their heads. The heavier logs which withstand this, are pulled down by all dragging them simultaneously at the bottom, thus causing them to fall. [The piercing of the hut with their head symbolises the piercing of the clouds, and the fall of the hut the fall of the rain.]

In the rare seasons which are too wet, the Dieri also have recourse to supplications to Mura Mura to restrain the rain, and Mr. Gason has seen the old men in a complete state of frenzy, believing that their ceremonies had caused Mura Mura to send too much of it.

The foreskin, which is carefully kept from the Kuraweli ceremony, is also supposed to have a great power of producing rain. The Great Council is always possessed of several of them for use when required. They are kept carefully concealed, wrapped up in feathers with the fat of the wild dog and of the carpet snake. Mr. Gason has seen such a parcel carefully unwrapped. The men watched with cat-like vigilance that no woman should be near, and implored him not to divulge the secret contents of the parcel to them; all the time knowing that no women were nearer than half a mile.

After this ceremony the foreskin is buried, its virtue being exhausted. If no rain follows, the explanation of course is that some neighbouring tribe has influenced Mura Mura not to grant it to them.

During times of partial drought the Dieri do not feel anxiety if they possess one of these foreskins, believing that with its aid they can cause rain to come before long. No matter how Mr. Gason scoffed at this belief they were quite immovable in it, believing that the foreskin has an affinity to the clouds and rain.

After rains have fallen there are always some who undergo the operation called Chinbari, which is cutting the skin of the chest and arms with a sharp piece of flint. The wound, which is through the skin, is then tapped with a flat stick to increase the flow of blood, and red ochre is rubbed in. By this raised

scars are produced. The operation is not very painful, to judge by the patient joking and laughing all the time. The reason given for this practice is that they are pleased with the rain, and that there is a connection between the rain and the scars. Mr. Gason tells me that he has seen little children crowd round the operator, patiently taking their turn and after they have been operated on, run away extending their little chests and singing for the rain to beat on them. However, on the following day they were not so well pleased when their wounds were stiff and sore.

§ 10. *Gesture Language.*

The use of signs instead of speech is common among the Australian blacks, but the signs in most cases are not used to an extent sufficient to justify the expression *Gesture Language*, as applied to them. There are, however, certain tribes who have a complete system of these signs, and who use them habitually to a considerable extent. The Dieri customs, as I have shown in this memoir, made the use of gesture in lieu of words sometimes indispensably necessary; moreover, on many occasions where it is not thus necessary, it is, nevertheless, extremely convenient.

In those tribes as to which I have personal knowledge, I have found great difference in the number and variety of gestures used, and as a recognized means of communicating ideas between one individual and another. It must be premised, however, that there are certain gestures which appear to be almost instinctively used by all people, whether savage or civilized; for instance, the beckoning with the hand towards oneself as meaning "Come here," or the waving of the hand from oneself as meaning "Go away," and so on. Such signs or gestures as these will, I expect, be met with in all tribes, but those to which I refer as being in greater or less use, are what I may perhaps not improperly term "conventional signs;" gestures which have been adopted in lieu of speech, and which have become generally accepted in the tribe or in adjoining tribes as having a definite meaning, which would not be apparent without explanation to a person seeing them for the first time.

The variation in the frequency of use or number of signs can be best shown by three examples. The Kurnai have very few word-signs of any kind, and no gesture language in the sense in which I have above defined it. Among the few signs used by them were these:—

Owing to the disinclination which they feel in common with other Australian savages to name the dead, it was customary

for a messenger conveying news of the decease of a person to do so somewhat in the following manner:—

Arriving at the place, and meeting the person or persons to whom he was sent, and being moreover painted with pipe-clay as an external indication of his errand, he might say thus: "The father (brother, &c., as the case might require) of that one (pointing out some individual present) is ——," here he would point with the forefinger either to the ground or to the sky.

This gesture downwards or upwards with the finger was the conventional gesture meaning "dead."

The Woiworung tribe, according to the information given to me by the sole survivor, Berak, whose songs have been already brought before the notice of the Institute in a previous communication,¹ made much use of gestures, and from the examples which he has given me, and which will find their place in a future memoir, they would even bear some comparison with those of the copious gesture language of the Dieri.

Between these two examples would be placed the mountain tribes of Maneroo, in which, so far as I can learn, gesture language was used to a greater extent than by the Kurnai, but to a less extent than by the Woiworung.

The first time that I saw some of the Cooper's Creek blacks, I was struck by the use of gestures by them, and especially the raising of the hand high above the head, and the waving of the hand from the person; this I took at the time to be either a defiance or a command to depart, but in reality they were the signs for peace and for enquiry as to our own movements. Afterwards, when I became better acquainted with these tribes, I came to see that these gestures were part only of a complete system of hand signs by which a person might be interrogated, informed, welcomed, or warned.

Some of the signs which I am now about to describe, I have seen and have myself used. For others I have to thank the communications of my correspondents, Mr. Gason, the Rev. H. Vogelsang, and the Rev. C. A. Meyer.

To hear. Raise the face upwards slightly and sideways as if listening, or point to the ear with the forefinger.

To see. Look straight forward and nod the head several times.

Astonishment. Clasp the hands together several times in front of the body, and give the face an expression of surprise (V.).²

¹ "Songs and Song-makers of some Australian Tribes," "Journ. Anthropol. Inst.," February, 1887, vol. xvi, p. 327.

² The capital letter attached refers to the name of the informant.

Above. The head is bent back and the eyes look upward, the right arm being held higher than the head and above it (V.).

All gone away. The two hands being placed together horizontally in front, palms downward, separate them in a sweep outwards apart. Then point to the horizon in the direction in which they are gone (V.).

Anger, sulky, obstinate, unwilling. Extend the lips outward in a pouting manner (G.).

Bad. Avert the face and screw up the mouth and nose as in disgust (V.).

Boomerang. Use the action of throwing this weapon (V.).

Before. The hand being held level to the waist, move it in front (V.).

Behind. The hand being held level to the waist, move it to the rear (V.).

Be quiet. Pass the right hand, open and palm inwards, in front of the face and a little distance from it (V.).

Be quick. Hold up the right hand somewhat high with the arm extended. Move it several times quickly downwards diagonally from right to left (V.).

Bring here. Extend the hand, palm upwards, fingers slightly curved as if to receive something. Then draw the hand towards yourself (V.).

Bring together, collect, heap up. Extend the arms with the palms of the hands towards each other, then draw them towards the body several times (G.).

Camp and sleep. Recline the head on one side upon the hand as if sleeping (V.).

Child. Place both hands behind the back as if carrying a weight (V.).

Companions. Hold up the fore and middle finger of one hand, then lightly snap the fingers and thumb (V.).

Cut. Draw the forefinger of one hand across the other hand (V.).¹

Come here. Beckon with the right hand towards yourself (V.).

Come on. Extend the hand and arm straight out. Then bend the arm towards yourself. Repeating this action several times means "come quickly" (G.).

Danger—Be careful. The action as of catching a fly with the right hand close to the mouth, and squeezing the closed hand together there (G.).

¹ There was a man of the Yantruwunta tribe, whom I frequently saw but whose name I never knew, excepting by the gesture which distinguished him, and which meant "broker arm." It was made by striking the radius of the left arm with the open right hand, held vertically.

Dog. Turn the forefinger of the right hand round the ear, and then point to the ear (G.).

Down here, this place. Extend the arm, slightly bent, with the hand open and vertical. Then make a scooping motion with the hands inwards (G.).

Dead—corpse. Bring the two hands together, then make a motion with them as if you were concealing something in them (G.).

Doctor—Wizard. Draw the head in between the shoulders, draw the forefinger down the nose, cross the arms over the breast, and then first stroke down each arm with the other hand, and then pass both hands over the stomach (V.).

Drink. See *Water*.

Disgust. Screw up the mouth and nose as if you were smelling something unpleasant.

Eat. Imitate the act of putting something into the mouth and then eating (V.).

Enough. Nod the head, and then move the hand, palm outwards, from the face. Or, pat the stomach gently several times with the open hand, then move it several times away from the stomach sideways (V.).

Enquiry—Who are you? What is it? Hold the hand in front of and a little lower than the left breast, palm downwards, then move it from that position to one in front of, level with and at the distance of the forearm and hand from the left breast. During this movement the hand is turned from being palm downwards to palm upwards (H.).

Emu. Hold the hand out. The forefinger and little finger extended, and the thumb and other fingers closed (V.).

Fight. Hold the two hands as high as the head as if grasping something. Then strike with them in all directions (V.).

Feather head-dress. Lay hold of the hair of the head with one hand, and with the other imitate the action of sticking something into it (V.).

Go away. Hold the right hand near the face, palm outwards, as if holding something. Then act as if throwing it away (V.).

Give me. Hold the arm outward a little bent, the hand palm upwards and the fingers slightly curved, as in the act of receiving something (V.).

Hear—I hear you—I understand. Extend the hand over the head as high as possible, then stoop and reach as far as you can, until the hand nearly reaches the ground. This is done quickly (G.).

Hear—I cannot hear you—I do not understand. Fan with the hand rapidly about two inches from the ear. These signs are used when persons are out of speaking distance (G.).

Halt—stop. The hand, palm downwards, is held a little in front, about breast high. The hand is now moved several times towards the ground. Or, embrace the body with the two arms, each hand holding the upper part of the other arm, and draw yourself together as if feeling cold (V.).

I or Me. Drawn a line down the face (down the nose), with the forefinger. Or, tap the breast lightly with the forefinger of one hand (V.).

Kill. Short blows are struck with one hand into the other hand. Or, clench the fist and strike with it several blows downward (V.).

Large. Clench the fist and strike downwards; for very large, strike a longer blow with more force (G.).

Long way—far off. Extend the hand quickly, at the same time bending the body forward and snap the fingers (G.).

Look out! Attention! Danger! Suddenly point in the direction of danger to which attention is to be directed (V.).

Man. Clutch the beard at the chin, and shake it once or twice (V.).

Man (old). Tap lightly several times on the top of the head with the hand (V.).

Mother. Take hold of the breast with one hand and shake it several times (V.).

No! Nothing! Shake the right hand, the palm downwards, the fingers loosely dependent and slightly separated. The action is that of shaking something from the fingers (V.), or, shake the head (V. and S.).

Peace. Stand erect and hold both hands high up above the head, palms outwards; or, hold up the right hand above the head, and shake it as in the sign for “nothing” (V.).

Request for or an offer of a female. The two hands being held in front, palms inward and slightly curved, close them together, the forefinger of the right hand passing between the forefinger and thumb of the left hand, and the left thumb between the forefinger and thumb of the right hand. The four fingers of the left hand close over the back of the right, and the little, ring, and middle finger of the right inside the palm of the left (H.).¹

Snake. The hand and arm extended. The hand is steadily moved from right to left several times (G.).

Silence—say no more. Stoop, and extend the arms full length outwards, the thumbs being turned inwards. This sign is used by the old men to the young men if they are misbehaving themselves, and it signifies “strangling” (G.).

¹ According to the Rev. H. Kempe, this sign is used just as I have given it above, and with the same meaning, by the Aldolonga tribe at the Friske River, South Australia, far to the north-westward of the Dieri.

Spear. An action as of holding a spear in the right hand and piercing something with it (V.).

Shield. The left hand is held clutched in front of the face and a little distance from it (V.).

*Sword (wooden).*¹ The action of holding this weapon with both hands and striking with it (V.).

String (man's belt). Imitate the action of winding something round the waist; or, for string only, imitate the action of twisting fibres with the hand on the thigh (V.).

Surprise. Draw the lips together (G.).

Thirsty. Make the sign for water, and then make the sign for give (V.).

Tomahawk. An action as of chopping with the right hand (V.).

What?—What do you say? Throw the hand up higher than the head and then gradually let the palm fall back, palm upwards (G.).

Water (fresh). With the right hand held in the form of a scoop, the palm being towards the body, imitate several times the action of passing water into the mouth (V.).

Water (salt). Point with one finger to the mouth, touch the tongue with it, and then spit several times (V.).

Woman. With the forefinger of each hand describe a circle round the breasts (G.).

Woman (old). With the forefinger point to the breast. Then describe a circle several times with it (V.).

Water bowl. Hold the left hand, palm upwards, partly closed to resemble a bowl. With the other hand also closed bowl-shape, make a motion as if scooping something out of the other hand (V.).

Yes. Make a movement with the hand as of catching a fly about a foot distant from the mouth (G.), or nod the head (V.).

§ 11. *Summary and Conclusions.*

The preceding sections render it now possible to summarise some of the conclusions at which I have arrived as to the Dieri tribe, always bearing in mind that it is the type of others in the same part of the Australian Continent, and with slight variation of custom also represents communities at a further distance. The facts now recorded as to these tribes show that aboriginal society as it exists in Australia is organized in a comparatively complete manner, and is not, as some

¹ This weapon (Marawiri) is some four to five feet in length, boomerang-shaped, of heavy wood, and is used with both hands at close quarters.

have supposed, but little more than the fortuitous aggregation of a number of human beings in a low stage. Their society is organized in a manner that is in full accord with their wants. It is based upon the relations of the sexes regulated according to their conception of morality. Their ideas of morality and our ideas of morality are not the same, but the moral sentiment is as strong in its way with them as with us.

The fundamental principle upon which their social structure has been formed is a prohibition against marriage, using that term in a wide sense, between those who are according to their ideas of near kindred. With them the conception of nearness of kin depends upon their view of the line in which descent runs, and descent in these tribes is counted through the mother. The Pirauru practice is clearly a form of group marriage, in which a number of men of one exogamous division cohabit with a number of women of the other division. The children of this group necessarily also constitute a group in which the members are brothers and sisters, and between them marriage is prohibited.

Here we find the idea which underlies the prohibition of marriage within the class division. All in it, in any given level of the generation, are brothers and sisters. The preceding level in the generation is the group-progenitor of the fraternal group, and this latter in its turn produces a group of children which stands in the filial relation to it. Here we have the actual fact as it exists in the Pirauru group, and this pictures to us the former condition of the class divisions, which condition has been fossilized, so to say, in the relationship-terms used.

The classificatory system of relationships, to use the term employed by the late Dr. Morgan, has been a great stumbling block in the path of many anthropologists, who in following their lines of enquiry have been guided by ideas in which they have grown up from infancy, as to the nature of the relations which exist between individuals. It has probably not suggested itself to them that since our system of counting relationships arises out of and is fitted to the conditions of our society, it might be that savages whose social conditions are so different may require some terms to define their relationships quite different in their character to those which we have. This error has probably arisen from considering a savage as a human being who in a rude exterior thinks much as does a civilized man. Such an idea cannot have a sound foundation. We see its results perhaps in the most marked form in the writings of Rousseau, but even late writers are not free from it.

The late Mr. J. F. McLennan, in his work on "Ancient Society,"

has argued backwards from the fragmentary and often imperfect accounts given by travellers to what he conceives must have been the origin of social institutions. He has regarded these matters not as one of the people would do whose customs he discusses, but as a civilized man seeing through civilized eyes, and with a mind nurtured in the ways and thoughts of civilization.

The works of this author might have been left without further remark were it not that in a late edition¹ of "*Studies in Ancient History*," no regard has been paid by the editor, Mr. McLennan, to the great mass of entirely new evidence which has been collected from the Australian field by the Rev. Lorimer Fison and myself, with the exception of a few remarks in the Appendix, to which I desire to draw attention. The first, which occurs at p. 311, runs as follows:—

"The theories of Mr. Morgan's ingenious disciple, the Rev. L. Fison (Kamilaroi and Kurnai), are all more or less founded on the fact that terms of relationship are in use among the Australians as terms of address. A correspondent whose means of getting knowledge are usually very imperfect, reports in answer to a question that certain rather large classes of people or whole populations, as the case may be, call each other brothers and sisters, or whatever other terms suit their respective ages, and Mr. Fison forthwith assumes that throughout these classes or populations there is full acknowledgment of blood relationship."

I cannot imagine anything more unfair than this statement, unless it be the second passage, which will be found at p. 315, which runs thus:—

"Mr. L. Fison (Kamilaroi and Kurnai: Melbourne), while not accepting the consanguine family on which Mr. Morgan's whole system rests, professes himself a believer in punaluan marriage and the punaluan family. But Mr. Fison's hypothesis, as stated in the work above mentioned, is not quite the same as Mr. Morgan's. Mr. Fison's 'intermarrying classes,' by the way, have sometimes been taken for matter of fact; but they are a hypothesis only."

Very little need be said, but it is not possible to pass over in silence such statements. The author ignores the mass of evidence which has proved that the relationship-terms are real, and not, as he desires his readers to believe, mere "terms of address," and that the intermarrying classes are indisputable matters of fact. It would be pleasant to be able to believe that

¹ "*Studies in Ancient History*, comprising a reprint of *Primitive Marriage*," by the late John Ferguson McLennan. A new edition. London, Macmillan & Co., 1886.

the astounding statements which I have now quoted have arisen out of mere want of acquaintance with the evidence by Mr. D. McLennan. But I regret to feel that this belief can scarcely be held, and that these statements must be regarded as the arguments of a partizan who desires to fortify some position. If this is the case they may be allowed to fall to the ground without further concern.

I have already shown how the marriage status in these tribes is of two kinds. There is first, individual marriage, and second, group marriage. The former may be spoken of as Noa marriage, and the latter the Pirauru marriage. In the former, the woman becomes the wife of a certain man by being promised to him as a child by her father. In the ordinary course of everyday life his right to her is paramount, but under the Pirauru practice this sole right to her is overruled by the right given to certain other men by the Council of Elders of the Tribe. Thus although on ordinary occasions the individual right of the Noa prevails whenever he is present, yet on certain other occasions, especially ceremonial ones, the group right becomes paramount.

One question shows itself at once in regard to these two forms of marriage—Which is the earlier one? Has the Pirauru group usurped some of the rights of the individual Noa, or is the reverse the case. To ask the Dieri this question would probably fail in a reply, but some light may be found to illumine this obscure question by taking a general glance over the customs of Australian tribes. I have found after gathering data for many years that the various Australian tribes of which I have accounts, may be placed in a series arranged according to their social organization, and especially with reference to their status of marriage, and the relations of the sexes in them.

The result of such a classification would be that the Dieri would stand close to the one end of the series, and such tribes as some of the Kamilaroi of New South Wales and the Kurnai of Gippsland at the other. The former would be found to have a strongly marked form of group marriage existing at all times, and modifying the rights of the individual husband. The latter would be found to have individual marriage absolutely established, with the exclusive right of the husband to his wife unless relinquished by his voluntary act. But at the same time there would be found rare occurrences of extensive license, in which the features of the Pirauru practice can be distinguished.¹

¹ In the times when the Kurnai tribe still retained its ancestral customs, the occurrence of the *Aurora Australis* ("Mungan's fire"), caused a temporary promiscuity amongst those who might otherwise have stood in marital relation to each other, the strongly established individual marriage being for the time in abeyance.

Between these two extremes would be found tribes in which the occasions of license are more frequent, producing what seems to be a temporary reversion to group marriage, or the right of the group to certain women.¹

Such an examination would lead to the conjecture that the change in social organization has been in the direction from group marriage to individual marriage and not the reverse; in other words, that the Pirauru is the older form and the Noa the more modern. Moreover, if an examination is then made of the relationship terms, it will be found first, as I have shown in § 4, that they fall into a set of groups indicating certain individuals who all have the same relation to some one person. The nature of these relations is logically deducible from the fundamental law of the divisions of the community into two intermarrying exogamous classes, each of which constitutes a group organized after the Pirauru arrangement; a group, that is to say, wherein there is Pirauru marriage between certain men and women, of one level generation, and this group is the group progenitor of the next following one, and stands in a filial group relation to the preceding one.²

These group relationship-terms in no wise fit with the status of individual marriage, but they do so with that of group marriage, as is shown by Pirauru groups, which may be found in actual existence in the Dieri and other tribes at the present day.

Thus then we have two independent lines of enquiry which point each to the conclusion that group marriage was the earlier marriage status, and that the individual (Noa) marriage has been developed later, and has encroached upon the marital rights of the group. What the causes may have been which have led to this change of status as to marriage it is not easy to say; but it is open to strong and probable conjecture that one, and perhaps not the least active of all agencies, has been the rise and establishment of the right to give away a girl in marriage to some particular individual of the group which intermarries with the group to which she belongs. This is a very common custom in Australian tribes, and must have been a powerful agent in producing a feeling of ownership in the husband. The further rise of individual possession would also bring about a sense of individual paternity as regards the wife's children which could not exist under group marriage, and which, as Mr. Gason shows, does not exist under the Pirauru system.

¹ *Jus primæ noctis*, e.g., Kuin Murbura tribe, Rockhampton, Queensland.

² This view explains why, in many tribes, a person calls one of his father's class or totem, who is older than himself, "father," and so on as to other relatives. These persons may be spoken of as the tribal relations. The Wakelbura tribe of Northern Queensland is an example, according to Mr. J. C. Muirhead.

When a community was gathered together at some one spot on ceremonial or festive occasions, group marriage would have full effect. When, however, the community was scattered over the tribal country, the tendency would be for the group to break up into lesser groups and even into couples. Here again would be a tendency under the impulse of individual liking to the rise of individual marriage.

Thus one is led to the conclusion that the earlier status of marriage in Australian tribes was the cohabitation in common of a number of men of one of the divisions with a number of women of the other division, and that there has been a gradual and probably a slow development of individual marriage. To those who regard the customs and the social organization of savages as a representation of the condition of the early ancestors of civilized peoples, the conclusions which are thus reached by a consideration of the socially lowest-standing Australian savages, must be of great significance as pointing to a yet earlier condition of society still lower in organization than that of the two exogamous divisions of a community, each living in a state of what may be called promiscuity as regards the "level in a generation."¹

Even in the tribes herein described there are traces of such absolute promiscuity as in the occurrences connected with the *jus primæ noctis* of the Kunandaburi and the license permitted on some few occasions by the Dieri even beyond their ordinary practice. Such occasional occurrence of extreme license on certain ceremonial occasions points, it may be thought, to a former general practice, and such a practice is indicated by some of the relationship terms.

If these views prove to be well grounded and become accepted by anthropologists, the conclusions reached by the authors of some standard works must necessarily be abandoned or modified.

One of the earlier works dealing with society in its primitive stages was that of Bachhofen. In *Das Mutterrecht* he evidently had got on the track of some truths. He saw dimly and as shadows the former existence of that social state in which descent is counted through women, and he built thereupon a vast and grotesque fabric of a primitive "gynocracy."

McLennan in his able work on "Primitive Marriage," reached a still higher point of view, and his horizon being proportionately enlarged, he came to the conclusion that the earliest form of society was one in which, owing to the scarcity of women, a number of men were compelled to marry one woman in common.

¹ Taking a generation to extend from grandparents to grandchildren.

He on this reached the conclusion that society commenced in "Polyandry," and it seems that the foundation for this hypothesis is in statements of travellers as to the existing customs of the Thibetans and Nairs.

Sir Henry Maine, in a series of remarkable works, threw a flood of light upon the condition of society in the Aryan races at the dawn of history, and connecting with this the historic evidence of the Semitic race, he reached the conclusion that society originated in "Patriarchy," wherein the family was grouped round and under the authority of the oldest male descendant, who claimed the right to appropriate to himself a number of women, thus producing "Polygamy."

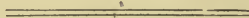
It is evident that all these writers held a certain measure of truth, and from their individual standpoints the horizon appeared such as each described it. But their horizons were not all the same, and beyond them still extends the great unknown and silent part of man's social history. It seems to me that it is to the study of the beliefs and institutions and the myths of savages that he must now look for side-lights by means of which he may be able with more or less certainty to discern the features of the tracts lying beyond the ken of history.

This memoir proves conclusively that in Australia at the present day group marriage does exist in a well marked form, which is evidently only the modified survival of a still more complete social communism.

The study of the tribal and social organization of the Australian savages and their beliefs and customs promises to yield the most valuable results, and I may venture to claim that the results of the studies which have been made upon these subjects by the Rev. L. Fison and myself have not been barren of results.

Explanation of Plate I.

Sketch-map of part of Central Australia, showing approximately the geographical distribution of the Dieri and kindred tribes referred to in the preceding Paper.



ANTHROPOLOGICAL MISCELLANEA.

ANNUAL REPORT of the BUREAU of ETHNOLOGY, SMITHSONIAN
INSTITUTION, 1883-4, 1884-5.

The Smithsonian Institution has issued simultaneously the fifth and sixth Annual Reports of the Bureau of Ethnology, bringing the publication up to the year 1885.

It is needless to say that these handsome volumes contain much interesting and important matter. American anthropologists have a wide field, and are not so restricted in means as their English brethren; consequently, their researches are more thorough, and their reports are minute and exhaustive.

In the present volumes we get first, the reports of the director with regard to the work of the year, both in the field and in the office, with the papers illustrating the work of the explorers. Mr. Cyrus Thomas and his assistants have been engaged in exploring the mounds and other ancient works of the United States, east of the Rocky Mountains, and in so doing have made some very interesting discoveries; chief among which may be noticed several plates of copper very thin and evenly wrought, upon which are impressed, as if by machinery, figures bearing a striking resemblance to those found in the Mexican and central American codices. These remarkable works of art were found in what is known as the Etowah group of mounds in Northern Georgia, in which were also found some of those curious engraved shells described and figured in the second volume of the same publication. Of these copper plates the director remarks, "The skill and art manifested in their manufacture are far in advance of anything hitherto discovered appertaining to the mound builders, and raise a serious doubt as to their aboriginal origin," whilst the conditions under which they were found "clearly indicate that they were placed in the mounds when the latter were built, and not subsequently."

The conclusions at which Mr. Thomas arrives in consequence of these and other discoveries are:--

1. That different sections were occupied by different mound building tribes, in much the same stage of culture, but differing in habits and customs.
2. That each tribe adopted several different modes of burial, depending probably upon the social condition, position, and occupation of the deceased.

3. That the custom of removing the flesh from the bones before final burial prevailed extensively, and the bones of the common people were gathered in heaps promiscuously, and a mound raised over them.
4. That, although some religious ceremony took place in which fire played a prominent part, there is no evidence of human sacrifices.
5. That there is nothing to show that the mound builders had attained a higher degree of culture than that of some of the Indian tribes at the first arrival of Europeans.
6. That mounds were erected over the dead in several localities in post Columbian times.
7. That the mound building age could not have continued longer than a thousand years, and hence its commencement probably does not antedate the fifth or sixth century. That nothing has been found to justify the opinion of their great antiquity.
8. That all the mounds examined are to be attributed to the tribes found inhabiting this region and their ancestors.

The director, whilst endorsing the views of Mr. Thomas in most respects, justly points out, with regard to the seventh proposition, that "an attempt to fix the duration or beginning of the mound building period, is unadvisable in the absence of evidence not yet obtained, and which may never be forthcoming."

Although Mr. Thomas believes that the copper plates above referred to, were not the work of pre-Columbian, Indian, or Mexican workmen, the work bearing evidence of having been done with hard metallic tools, he fails to give any European or Asiatic analogues.

It must be observed that these works are found only in Northern Georgia, and in Northern and Southern Illinois.

One very curious discovery made by Mr. Mindeleff whilst excavating a pueblo in Arizona must be noticed.

In a marginal room in the pueblo was found "a circular doorway, made of a single slab of sandstone, pierced by a large round hole."

This would appear to bear a close resemblance to the Cornish Men-au-tol, but, as it is not figured, it is impossible to say more.

The narrative of Mr. Charles C. Royce relating to the Official Relations of the Cherokee Indians with the Colonial and Federal Governments, although containing much important historical matter, illustrated by excellent maps, will not greatly interest English readers, except as illustrating the migrations of a nation in modern times; but the paper called "A Mountain Chant," being a description of a Navajo ceremony, will delight the Anthropologist and Folk-lorist. It would be impossible in this short notice to give any idea of this very long and interesting paper, containing so many descriptions of dances and ceremonies among the Navajo Indians, with the myth from which they originated, and illustrated

by many excellent engravings and coloured plates. The dances appear to be religious medicine dances, undertaken primarily for the healing of the sick and invocation of the gods. The points of resemblance to the Australian corroboree are numerous; the use, also, of that widely distributed instrument, the bull-roarer or groaning stick, which in this case must be made only of the wood of a pine which has been struck by lightning; the painting of the body in black and white, the great plumed arrow, the talking sticks, the plants used, and the songs and incantations, are all of very great interest; and it is not a little curious to find in the myth a story resembling that so frequent in our own fairy tales, in which the hero is invited to eat and drink, but receives a friendly warning not to do so, lest he should turn into some animal and never regain his own form. The four great pictures are remarkable and very instructive as regards the symbolism of the Navajo Indians, which perhaps may help to interpret some of the Mexican paintings. The appearance in one of them of the *swastika* is also of great interest.

The remaining papers in this volume are: one on the Seminole Indians of Florida, by Clay Macaulay, with illustrations representing the people and their costumes, their architecture, industries, &c., all which deserve careful study; and lastly, "The Religious Life of the Zuni child," by Mrs. Tilly E. Stevenson, which may be regarded as supplementary to the papers on the Zunis by Mr. Cushing, which have appeared in former volumes. This paper is also beautifully illustrated in colours, and contains a short account of Zuni mythology, birth customs, and initiation ceremonies.

In the second of these volumes the paper which will be read with the greatest interest is that upon "The Central Eskimo," by Dr. Franz Boas, which, taken in connection with those of Dr. Rink which have appeared in the Journal, may be said to give an exhaustive history of these very interesting people. The plans of houses, the sledges, boats, and weapons, and the tattoo marks of the women, are well illustrated; whilst the social life, the games, the religious and superstitious ideas of the people, are fully described, and the comparisons between the traditions of the Central Eskimo and those of the tribes of Greenland and Alaska are instructive. Dr. Boas also gives a number of Eskimo sketches, and songs with the airs to which they are sung.

The paper by Mr. Holmes on "Ancient Art of the Province of Chiriqui, Columbia," is a very valuable addition to our knowledge of a land and people very little known to Europeans. Several curious problems are presented by the objects found in the graves in this region, which appear to have been made for mortuary purposes, and not to consist, as is usually the case, of articles used by the deceased or his friends. Although they appear to have been skilful metal-workers, and even understood the art of coating copper with a thin plate of gold, they do not seem to have used metal tools. Their pottery was very elegant, resembling in form

the archaic Greek vases, but presenting also many grotesque animal forms, some being painted in geometrical patterns.

Mr. Holmes contributes another interesting paper to this volume on "Textile Art in its relation to the Development of Form and Ornament," well illustrated. Nothing in modern work seems comparable with an ornamental fringed mantle from an ancient Peruvian tomb figured by Mr. Holmes, in which rows of human faces are represented on raised rosettes surrounded by tassels, and terminating in a fringe of various colours, twenty inches deep, composed of tassels of various sizes, all of fine silky wool, and of a rich crimson colour. Mr. Holmes derives the arabesque style of ornamentation from the art of the weaver. How far he has proved his theory, readers of the paper will be able to judge.

The remaining paper on "Aids to the Study of the Maya Codices," by Cyrus Thomas, is one more for the student than for the general reader. If Mr. Thomas can succeed in deciphering the meaning of these Maya hieroglyphs, he will render a service to American archæology which may compare with the work of Egyptologists and readers of cuneiform. His present conclusions are that the Maya characters have grown out of a pictographic system, similar to that common among the Indians of North America.

Undoubtedly the two volumes before us contain an immense amount of information on a variety of topics, and will afford the student much food for thought, and probably not a little controversial matter; but it is in churning the ocean of controversy that Truth comes to the surface.

A. W. BUCKLAND.

THE BRITISH ASSOCIATION.

The Sixtieth Annual Meeting of the Association will be held at Leeds, commencing on September 3rd, when Professor Flower, the President, will be succeeded by the President-elect, Sir Frederick Abel. In Section H, devoted to *Anthropology*, the President will be DR. JOHN EVANS; the Vice-Presidents, Professor Cunningham and Mr. Rudler; and the Secretaries, Mr. Bloxam, Dr. C. M. Chadwick, Dr. Garson, and Mr. Ling Roth. Papers to be read should be sent in not later than August 6th, addressed to "The General Secretaries, British Association, 22, Albemarle Street, W."

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

MARCH 11TH, 1890.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From the AUTHOR.—La Formule de Reconstitution de la Taille d'après les os longs. Par M. Topinard.
— Le Canon des Proportions du Corps de l'homme Européen. Par M. Topinard.
— La Stéatopygie des Hottentotes du Jardin d'Acclimatation. Par M. Topinard.
— Mensuration des Cranes des Dolmens de la Lozère d'après les registres de Broca. Par M. P. Topinard.
— Un mot sur l'histoire de l'Anthropologie en 1788. Par M. Topinard.
— Essais de Craniométrie a propos du crane de Charlotte Corday. Par le Dr. Paul Topinard.
— Présentation de quatre Boshimans vivants. Par M. Topinard.
— L'Anthropologie de Linnée. Par Le Docteur P. Topinard.

- From the AUTHOR.—*Les Ossements de Spy et l'Ethnographie de la Tunisie. Rapport sur le concours du prix Broca. Par M. Topinard.*
- *L'Anthropologie dans ses rapports avec la Zoologie. Par le Dr. Paul Topinard.*
- From the GERMAN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—*Archiv für Anthropologie. Band xix. Vierteljahresheft, 1, 2.*
- From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE ETHNOLOGIE UND URGESCHICHTE.—*Zeitschrift für Ethnologie. 1889. Heft 4, 5.*
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—*The Scottish Geographical Magazine. Vol. vi, No. 3.*
- From the CLUB.—*Proceedings of the Berwickshire Naturalists' Club. 1888. Part 2.*
- From the INSTITUTE.—*Transactions of the Wagner Free Institute of Science of Philadelphia. Vol. 2.*
- From the SOCIETY.—*Proceedings of the Royal Geographical Society. Vol. xii, No. 3.*
- *Journal of the Society of Arts. Nos. 1945-1946.*
- *Journal and Proceedings of the Royal Society of New South Wales. Vol. xxiii. Part 1.*
- *Catalogue of the Scientific Books in the Library of the Royal Society of New South Wales. Part 1. General Catalogue.*
- *Bulletin de la Société Impériale des Naturalistes de Moscou. 1889. No. 3.*
- From the EDITOR.—*Nature. Nos. 1061-1062.*
- *Science. Nos. 368-369.*
- *Revue Scientifique. Tom. xlv. Nos. 9-10.*

EXHIBITION of TWO SKULLS *from a CAVE in JAMAICA.*

By PROF. W. H. FLOWER, C.B., F.R.S., &c.

MR. W. FAWCETT, Director of the Botanical Gardens of Jamaica, when on a recent visit to this country, brought with him two crania belonging to the Kingston Museum, which he has permitted me to exhibit to the meeting of the Institute before they are returned. The only history which Mr. Fawcett could give of them is that they were found by the Hon. Henry Shirley in Pedro Bluff Cave, Jamaica. It would be very desirable, if possible, to have further information as to the circumstances under which they were found, especially as to whether they were associated with other bones or with any objects by which their age could be identified. As the condition and colour of the two are entirely different, it is probable that they came into the cave at different times and had remained there under different conditions.

The cranium, of which I shall speak first, is of great interest, as it is undoubtedly that of one of the aboriginal races of America, and therefore in all probability one of the long vanished people who inhabited the island of Jamaica before the European conquest, and of whom we have such scanty traces remaining. It is that of a person, probably of the male sex and beyond middle age, many of the teeth having been lost during life, and the sagittal and lambdoidal sutures being partially obliterated; the mastoid processes, glabella, and supra-orbital ridges are strongly marked. The cranium has been artificially deformed during infancy in a very marked degree, according to the fashion most frequent along the whole of the west coast of America, *i.e.*, by depression of the frontal region, or fronto-occipital compression, with corresponding lateral expansion. This form of deformation is known to have been practised among the inhabitants of the West Indian Islands. In all essential features, the skull is purely American; indeed I see no characters by which it could be distinguished from one of those, now so abundant in collections, obtained from the old burying grounds on the sea-coast of Peru. The greatest length is 172 mm., the breadth 15 h., the height (basi-bregmatic) 124, giving a breadth-index of 895, and a height-index of 721; but their dimensions and indices are of course materially modified from the original by the artificial deformation. The face is remarkably characteristic, especially the high orbit (breadth 36, height 37, index 1028), and the form of the nasal bones, which, although not complete, still show the form so distinctive of the high-bridged American nose. The nasal height is 53, breadth 26, giving an index of 491. The basi-nasal length is 93, but the basi-alveolar length, and consequently the gnathic index, cannot be taken owing to the loss of the front teeth and absorption of the alveolar margin. The palate is broad and rounded, but for the same cause its dimensions cannot be given.

The second cranium presents a remarkable contrast, and is equally characteristic of another race which at a later period formed the mass of the population of this island, the African negro. It is not stained the same yellow colour as the other, but retains the natural greyish white of the bone tissue. It is that of a much younger person, not much above 20 years of age, as, though the basi-cranial suture is closed, all those of the upper surface of the cranium are open, and the third molars have evidently but recently come into place and are quite unworn. Its general characters are feminine. The nasals are small and flat. The nasal opening is not so wide as in negroes generally, and the nasal index consequently lower, but the inferior margin is characteristically rounded, and the nasal spine feebly

developed. There is marked alveolar prognathism. The forehead is smooth, with scarcely any supra-orbital ridge or glabella. The length of the cranium is 175 mm., the breadth 129, index 737; the height (basi-bregmatic) 133, index 760; the orbital breadth 38, height 34, index 895; nasal height 47, breadth 23, index 489; basi-nasal length 96; basi-alveolar length 99; gnathic index 103.1. The cranium presents no traces of artificial deformation.

DISCUSSION.

Mr. BOUVERIE PUSEY, referring to a suggestion that one of the skulls might be that of a Carib, called attention to the distinction between the Caribs on the one hand and the aboriginal race of Jamaica and the other large West India Islands on the other. He also expressed the opinion that the Caribs were not altogether extinct in St. Vincent and one or two of the other smaller Islands.

Dr. SUMMERHAYES said that he wished to corroborate what the last speaker had stated with regard to the Caribs. These people, variously termed *Galibis*, *Caraihs*, *Caripunahs*, and by a Spanish corruption of the word "*Canibales*" (whence our *Cannibals*), were simply a branch of the great "Tupi" family of Brazil—to whom they were related somewhat as the Northmen, Ostmen or Danes were to the Gothic tribes, who overspread Europe on the decay of the Roman power. The Caribs were a confederacy of pirates and slave hunters resembling the Masai of East Africa or the Saxons of Early English History rather than the peaceful traders of Bokhara to whom Humboldt likened them. They had the upspringing nasal bones, pointed out by Professor Flower in the skull before the meeting, and not the depressed nasals which were the common property of the Arowaks and the other unwarlike tribes of South America, with the Mongols of Asia. He could not explain the unusual association with a (female) negro skull, which he would like to regard as that of a primitive negroid, such as Quatrefages describes as existing in various parts of the American Continent, which according to him presents the same mixture of white, black and yellow races as Asia, only the yellow or Mongoloid type vastly predominates. The best account of the Caribs is to be found in the *Ethnography of Martius*, who in association with Spix made an exhaustive study of the South American races. The "Taini" or aborigines of the Antilles were soon killed off, and resembled, it is thought, the Arowaks.

The following Paper was read by the Secretary :—

MANNERS, CUSTOMS, SUPERSTITIONS, and RELIGIONS of SOUTH AFRICAN TRIBES.

By Rev. JAMES MACDONALD, Reay, Caithness, N.B.

*(Second Paper.)*¹

At the beginning of the present century there was but little known of the Zulu tribes who inhabited the coast region between the Tugela and Delagoa Bay. Few Europeans had visited the country, and the little intercourse between the natives and men of civilized nations consisted of occasional formal meetings for the purposes of barter. The natives brought down ivory and skins, and in exchange for these received from the traders such articles of European manufacture as they required.

About 1793 Dingiswayo, heir to the Abatetwa chieftainship, came as a fugitive to the Cape Colony. In 1797 and 1799 military expeditions were sent against various frontier tribes. The young chief was not an idle observer of passing events, and he seems to have taken the lessons of the expeditions deeply to heart. He observed that a small body of trained men could spread confusion and dismay through thousands of untrained savages, and resolved that, if he ever saw his native land again, he would have a standing army as the leading feature of his government.

On hearing of his father's death, Dingiswayo sent a message to his tribe that he intended to return and claim his rights. The message was followed by the news of his approach, and it was announced that he was mounted on an animal of wonderful strength, beauty, and speed. The Abatetwa had not yet seen a horse, and the *éclat* of their chief's return was heightened by his making his appearance on the strange animal. No sooner was he established in power than he organised a standing army on the European model.

In the meantime, Tshaka, the heir of Zululand, had to flee for his life from his father's ire, and sought an asylum with his kinsman, Dingiswayo. Under him he received that military education which has made his name famous.

When Tshaka became ruler of Zululand, he divided the kingdom into military districts, and placed his soldiers under a most rigid system of discipline. They could only marry with the king's consent, and any duty laid upon them they had to

¹ The first paper appeared in the "Journ. Anthropol. Inst.," vol. xix, No. 2, p. 264.

attempt, however hopeless its nature might be. There has probably never been a more perfect system of discipline than that by which Tshaka ruled his army and kingdom. At a review an order might be given, in the most unexpected manner, which meant death to hundreds. If the regiment hesitated or dared to remonstrate, so perfect was the discipline and so great the jealousy that another was ready to cut them down. A warrior returning from battle without his arms was put to death without trial. A general returning unsuccessful in the main purpose of his expedition shared the same fate. Whoever displeased the king was immediately executed. The traditional courts practically ceased to exist so far as the will and action of the tyrant was concerned. Such was the origin of that military organisation with which, for over a quarter of a century, he carried on a war of extermination against surrounding tribes, and devastated hundreds of miles of territory. This it was which gave colour to so many Zulu institutions, and made them such formidable foes when Lord Chelmsford's ill-starred expedition was crushed and almost annihilated under the heights of Isandhlwana.

One illustration of the fidelity demanded of Zulu soldiers will suffice: Among the bravest generals was one Mapopoma. His mother, Godase, and his brother, Sigwebana, fell under the king's displeasure, and their execution, as well as that of their immediate retainers and attendants, was entrusted to Mapopoma. Sigwebana was a general favourite, and got a hint of his danger. He immediately fled with his mother, but was intercepted by his brother with a detachment of soldiers before reaching the Tugela. A desperate conflict ensued, and Sigwebana with a few followers cut their way through and escaped. Godase returned and fled for safety to an American mission station. Mapopoma reported the matter to the king, and asked for further orders. The answer was laconic, "All must die." The detachment then marched to the mission, and regardless of Mr. Groute's protest, entered the house and dragged her out. She knew her end was come, and with all her native dignity followed the soldiers without a word, and at a short distance from the house suffered a cruel death. Beyond this barbarity could hardly be carried, and we do not wonder that Tshaka, in constant dread of intrigue, should have had all his own sons killed in infancy lest they should in after life give coherence to that disaffection which underlay the apparent prosperity of the kingdom. The hill of execution near his residence was never without carrion, and vultures sat on the surrounding trees day after day patiently waiting for the victims. The manner of execution was by repeated blows from a knobkerrie. So died Godase

under the hand of the son she had so carefully reared, and who, as one of the king's generals, was the pride of her old age.

Apart from the military organisation, the customs of Zululand differ in no essential from what is common to all the tribes. Omens are regarded with the same superstitious dread as they are farther south. If an owl, buzzard, turkey, or red-breasted eagle settles on the roof of a house, it is supposed to be sent by a malignant person who has the power of witchcraft, and that it is the harbinger of evil. The magician is called, and he purifies the place by sacrifice and sprinkling. The eagle referred to is sacred, and is never killed, though it carries away large numbers of domestic chickens and often kills young lambs and kids. The person killing one would become bald, and would be pursued by an evil fate to the end of his days. If a dog jumps on the roof of a house or lifts its leg against the doorpost it is a warning of coming calamity, and a magician is called. In this case the ordinary sprinkling is not performed. He chews certain roots, and filling his mouth with water, spits it about the door, roof, and walls of the hut. This is sufficient to avert any evil consequences. If a tree is struck by lightning the magicians dig it up by the roots and burn it. The ground is sprinkled as in the case of dwellings, but no sacrifices are offered, and there is no dancing. If a Pondo woman sees a spotted water-snake when fetching water, it is uncleanness to her. She drops her water vessel, and returning home, sits down in a corner of the hut with her face in her hands. When spoken to she makes no sign of having heard. If asked what is the matter she continues in the same attitude, and makes no reply. It is then known that she has seen the *inhlata*, and the witch doctor is called. On his arrival he performs mystic rites, after which he purifies not only the woman but the house, cattle-fold, and all the surrounding premises. There is no sacrifice, but it is customary to kill a beast in honour of the doctor's visit. Divination by lot is never practised among the coast tribes, all revelations being made directly to the magicians by the spirits in dreams and visions. Basutos divine by means of dice in many of their daily affairs and regarding the fortunes of war. Sleep is not forbidden except in connection with initiatory rites when young men are entering on manhood.

Guilds and Lodges.—Of separate religious and political associations we find little trace except among the hill men. The jealousy of the military organization or caste would prevent the existence of such among the Zulus, and the domestic life of the coast natives is so completely under control of the magicians, who form a distinct order, that no other lodge or guild can be said to exist as a separate institution. Among the mountain

tribes there are ceremonies by which youths are formed into secret guilds or lodges with pass words.¹ The members of these lodges are bound never to give evidence, under any circumstances, against one another. The rites of initiation are kept profoundly secret, but certain horrible customs performed on these occasions have become known. One of these customs is that of infusing courage, intelligence, and other qualities. Whenever an enemy who has acted bravely is killed, his liver, which is considered the seat of valour; his ears, which are considered the seat of intelligence; the skin of his forehead, which is the seat of perseverance; his testicles, which are the seat of strength, and other members, each of which is supposed to contain some virtue, are cut from his body and baked to cinders. The ashes are carefully preserved in the horn of a bull, and being, when required, mixed with other ingredients into a kind of paste, are administered to the youths by the tribal priest as a kind of bolus. By this means the virtue, strength, valour, and intelligence of the slain are imparted to them.

Intonjane.—In a former paper the rites of initiation into manhood were described, but consideration of the corresponding rites in the case of young women was deferred. These rites have such an important bearing on the domestic life of the people, and are besides so peculiar, that a somewhat detailed account is necessary. I am not aware that any reliable account of the ceremonies now under consideration has been published, and this is easily accounted for. Europeans are never, under any pretext, allowed to witness them, and natives rarely give a full and satisfactory description of what takes place. Only by comparing the accounts given by many different individuals can one arrive at a satisfactory conclusion, and feel that he has learned all the essential features connected with this period of a young woman's life. The subject is moreover a delicate one, and hardly suitable for the pages of any other than a scientific journal.

When a girl arrives at the age of puberty—first menstruation—a beast is killed as a thank-offering to the ancestral spirits, and high revel is held for several days. Dancing is continued nightly till those engaged in it are exhausted, or daylight arrives. Music is supplied by women beating on a dry hide and singing in unison. The girl takes no part in the rejoicings. For her a separate hut is set apart, and a small portion partitioned off at the farther end, in which she is secluded. A number of young girls from twelve to fourteen years of age

¹ Theal.

collect and remain as her attendants till the ceremonies are concluded. They begin by collecting a quantity of dry grass and covering the floor of the hut with a thick layer of it. They, after this is done, occupy the outer or larger portion, and there they sing day and night, ceasing only when quite overcome with sleep, and then only for a very short interval. No married man may come near the dwelling, and should anyone do so he is beaten away by the girls, who attack him most viciously with sticks and stones. During her seclusion the neophyte must on no account see or address any man, married or unmarried. She can address no one, not even the girls in attendance, except when absolutely necessary, and then in a whisper. She does no work, and must not converse about any of the ordinary affairs of every day life. Should she want food or drink she must not call her attendants, but tapping gently on the wall of the hut, attract their attention, and then in a whisper communicate her wishes. She must not anoint her body with fat as usual, and her hands and face may not be washed on any account. Bathing is out of the question. No bed clothing is allowed, and her garments are not changed till she resumes her ordinary mode of life.

After a few days and when dancing has been discontinued, young men and girls congregate in the outer apartment of the hut, and begin singing, clapping their hands, and making a grunting noise to show their joy. At night-fall most of the young girls who were the intonjane's attendants, leave for their own homes for the night, to return the following morning. Thereafter the young men and girls, who gathered into the hut in the afternoon, separate into pairs and sleep together *in puris naturalibus*, for that is strictly ordained by custom. Sexual intercourse is not allowed, but what is known as *metsha* or *ukumetsha* is the sole purpose of the novel arrangement. *Ukumetsha* may be defined as partial intercourse.

Every man who sleeps thus with a girl has to send to the father of the intonjane an assegai; should he have formed an attachment for his partner of the night and wish to pay her his addresses he sends two assegais. The second assegai is either returned after a few days as a sign that his advances are not acceptable to the girl's own father, or it is retained as a pledge of good faith. A breach of this promise, though on account of other domestic arrangements he may not be able to marry her as his first wife (his father settles that) is highly displeasing to the ancestral spirits, and they punish him in his person and property till appeased by costly sacrifices. The more assegais the father receives the greater man he is, and they are shown with pride, as evidence of the honour done to his daughter, and the esteem in which he is himself held.

After a farther period of seclusion, extending to about three weeks in all, the intonjane comes out of her apartment, and running as fast as she can, makes for the nearest stream or river, followed by her attendants. She makes the first plunge, and then they gambol and play in the water and on the banks nearly the whole day. While they are at the river the grass is removed from the hut and burned, to show that now the intonjane is clean and that she may associate with others. The hut is carefully cleaned and smeared over, both floor and walls, with fresh cow dung. Towards sunset the girl returns, followed by her companions singing and dancing. On entering the hut she sits in the middle of the floor, and her attendants, standing in a circle round her, sing a song peculiar to the occasion. This is the sign for the "wise" women to enter and greet the girl. This they do by beating the tips of her fingers with little wands and pronouncing certain words and forms of congratulation. She is next conducted outside the hut and asked to lie down on a mat prepared for her. The old women form a circle round her, and the men of the village stand a few paces apart. One by one the women kiss, first her cheeks, and after that her *mons veneris*, *labia*, and *nymphae*. Two of the wisest are deputed to examine the condition of the vulva and adjacent parts, and after they have performed a slight surgical operation she returns to her hut, now a woman.

The girls who were her attendants are now called and examined by the women. Should any of them be found not to be *virgo intacta*, they spit upon the labia and cry to the men who are standing by, "Here is a *thing*. We are spitting upon it." The men then approach and spit upon her in a similar manner. The women thrash her with saplings, and each man as he spits says, "Thrash on: she is foul." After being thus insulted and beaten, she is dismissed to her home in disgrace. The girls who are pure return to the intonjane, and after much merry-making the party disperse to their respective homes.

If menstruation should commence for the first time while a girl is walking, gathering wood, or working in the field, she runs to the river and hides herself among the reeds for the day, so as not to be seen by men. She covers her head carefully with her blanket that the sun may not shine on it and shrivel her up into a withered skeleton, as would result from exposure to the sun's beams. After dark she returns to her home and is secluded as already described. No cause is assigned for the appearance, continuance, or disappearance of the catamenia. It is, of course, observed that there is a connection between it and the period of fecundity. Among the Bacas women are secluded during the continuance of the flow, generally for a period of six

days, when they are not allowed to see or touch cow dung, which is in universal use for smearing floors after being swept. Should a man touch a woman during the period, his bones become soft, and in future he cannot take part in warfare or any other manly exercise.

Murder.—The relatives of a murdered man are not allowed to avenge his death, nor may they employ others to do so. Their wrong must be redressed after trial before the paramount chief and his council of state. To avoid feud and bloodshed, the respective parties to the case are strictly forbidden to go near one another's dwellings till after the case is finally disposed of. The chief, through the executive, takes all the necessary steps for a full inquiry and the attendance of all necessary witnesses. If the accused is found guilty the verdict may be manslaughter or murder. In the former case punishment is invariably by fine, which goes to the chief. When once the fine is paid the prisoner is free, and takes his place in society as if nothing had happened. The chief makes what compensation he deems right to the relatives of the murdered man, often sending only one cow. Should the verdict be premeditated murder, punishment is ordinarily by fine, but in this case a man may be "eaten up"; that is to say, the whole of his property, including his wives and children, may be confiscated, and he himself be deprived of his rights as a tribesman. This reduces him to the condition of a wanderer, and is equivalent to expulsion from the territory. The chief may restore his wives and family after a time, if that is deemed desirable. The weapon used is sent to the relatives of the victim, who, while they retain it, are supposed to be exempt from any further similar calamity. Among the coast tribes a murderer is not unclean in the ceremonial sense, nor does he undergo any process before being re-admitted to society. I am not certain regarding the custom in this particular among the hill tribes, but have heard it stated that he must pass through the hands of the priest. Murder is not a common crime, but manslaughter, in village brawls, is a thing of constant occurrence.

Doctrine of Souls.—Of all the subjects connected with savage and semi-savage life in Africa, the doctrine of souls is that which it is most difficult to understand fully and state clearly. After years of residence, and daily intercourse with the people, new phases of that mysterious region, the spirit world, present themselves, and the *corrections* of one's early and crude conclusions have to be re-corrected, and often new conclusions formed. Facts regarded as fixed and permanent, and accepted as such by one writer after another, have to be discarded as merely local or tribal, or even sub-tribal. From magicians belonging to the same tribe statements are heard differing so widely that it is

impossible to reconcile them, and often difficult to trace them to a common origin. Each magician gets his communications directly from the spirit world, and delivers them in the form of riddles or dark parables. If he has attained to eminence these are handed down by oral tradition, and his successors interpret his sayings as suits their own purposes. These traditions accumulate from one generation to another, and become in most cases a hopeless mass of confused and meaningless so-called revelations. There are, however, certain outstanding facts accepted by all. To these we must confine our attention.

All human beings have souls, and these are not supposed to be entirely confined to the body. A man's soul may be spoken of as occupying the roof of his hut, and if he changes his residence his soul does so at the same time. This is, however, but a loose and indefinite way of expressing the belief that a man's spirit may have influence at a distance from the place where he is himself at any time. There is a medicine in use among magicians which when taken enables a man to influence another at a distance by simply "willing." In the court at Tsolo, before J. P. Cumming, Esq., an important trial, which turned a good deal on the power of witchcraft, took place a few years ago. A witness declared that a man, after partaking of a certain medicine of which he produced a quantity, could influence any woman to come straight to the place where he was if he only knew her name, by "willing" to have her; his spirit went to her and called her, and no one can resist when called by a spirit. At the moment a young woman happened to be passing along the road opposite the court room windows. Mr. Cumming told the witness her name, and asked him to swallow a quantity of his medicine, and bring her up to the court. This challenge was too pointed, and was declined on the ground that the medicine did not act if there were any present who did not believe in its virtue, and the magistrate being an unbeliever, the experiment could not succeed. After that the case proceeded on other lines.

The whole spirit world is one of haze and uncertainty. No definite description of it can be got from anyone. A common word in use to express their ideas of human spirits and the unseen world generally is *izitunzela*, from *izitunzi*, shadows, and this is the nearest description that can be obtained. A man is constantly attended by the shadows or spirits of his ancestors as well as his own, but should a man die without speaking to his children shortly before his death, his spirit never visits his descendants except for purposes of evil. In such a case costly sacrifices are offered by the magicians or priests to prevent misfortune and death. The spirit leaves a

man's body by the mouth and nostrils with his breath, and can never return; "He can never look upon the sun again." In cases of illness, when one has been in a state of coma or lain unconscious for a time, it is said that "his spirit left him, but that he has returned to life again." This is not a final leaving or death, only a temporary departure. It is interesting to note that Africans never speak of a man as dead. The phrase is, "He is not here," or, "He will never look upon the sun again." This same reluctance to speak of a man as dead is still characteristic of parts of the north of Scotland. During the year and a half I have lived in Caithness, I have not even once heard the words "He is dead," or "He died," from a native of the country. The phrase invariably used is, "He is taken away," or, "He was taken away."

To dreams and visions Africans attach great importance, but no theory of their origin, beyond being referred to spirit influence, is given. Should a man dream the same dream more than once he consults the magicians, who profess to have much of their own revelations through dreams. They direct him how to act, and his superstitious fears are allayed after he has communicated his troubles to them, and left his case in their hands. If the dreamer sees a departed relative the magician says oracularly, "He is hungry." A beast is then killed as a quasi-sacrifice. The blood is carefully collected and placed in a vessel at the side of the hut farthest from the door. The liver is hung up in the hut and must not be eaten until all the flesh of the animal has been used. During the night the spirit is regaled and refreshed by the food thus provided, and eats or "withdraws" the "essence" that goes to feed and sustain spirits. After a specified time all may be eaten except the portions the magician orders to be burned; generally bones and fat.

The departed spirit ascends to heaven, and by so doing "goes home." Though there are superstitions about spirits inhabiting caverns, the roofs of houses, and other places or objects, the idea underlying it all is, that the spirit at death goes upwards to the spirit land. This is clearly shown by their usual form of prayer, which is, "Ye who are above, who have gone before, &c." These departed spirits revisit the world and are interested in all the affairs of men. They bring prosperity or the reverse according as they are revered and obeyed or not, and when there is any departure from custom their displeasure is dreaded as men dread the plague.

I once bought a disused cattle-fold for fuel from a Gcaleka, and after carting it home discovered that it had been struck by lightning, and that I might have had it for the taking. I sent for my friend and, to tease him, explained that all the evil that

was in the timber of his fold was transferred to the coins; "his wood was my money," and that his ancestors would not easily forgive his shallow attempt to deceive them for his own ends. In alarm he sent for a magician, who doctored the coins and appeased the spirits. After that no evil was to be apprehended and the money could be used, but had the doctor decided that the transaction could under no circumstances be legitimate, the purchase price would be as useless to him as were the decaying posts I had removed. It could neither be used by himself nor given to any other native.

Ancestor worship is not only professed by them, but they actually regulate their conduct by it. If a man has a narrow escape from accident and death, he says, "My father's soul saved me," and he offers a sacrifice of thanksgiving accordingly. In cases of sickness, propitiatory sacrifices are offered to remove the displeasure of the ancestors, and secure a return of their favour. Should anyone neglect a national custom in the conduct of his affairs, he must offer sacrifice to avert calamity as the consequence of his neglect. When offering propitiatory sacrifices the form of prayer used by the priest is: "Ye who are above, accept our offering and remove our trouble." In freewill offerings, as in escape from danger or at the ripening of crops, the prayer takes the following form: "Ye who are above, accept the food we have provided for you; smell our offering now burning, and grant us prosperity and peace."

The bodies of the dead, after burial, are sometimes supposed to take the form of the *Tukwakwa*—a deadly species of snake—which is never killed by the natives. This, however, is almost peculiar to the Zulus. The tribes farther south hardly ever refer to such transmigration, nor is there anything in their practices to lead one to think that such beliefs ever were prevalent among them.

Animals have no souls, but they "have a language, though no one has ever been able to understand it."¹ The owners of cattle and horses are constantly in the habit of addressing them as if they understood every word said, and I have at times fancied, so very knowing do they become, that they understand a great deal more than civilized people are apt to think. I have seen a horse show unmistakable signs of pleasure when praised, and suddenly drop his ears and walk away when told he was an ugly, troublesome, and useless brute. Inanimate objects have no souls, and are never addressed as animals are. Spirits, however, do reside in inanimate objects, and their presence there has an influence upon many customs and habits.

¹ Sutton.

During the rebellion of 1879, Umhlonhlo, after the murder of Mr. Hamilton Hope, the British Resident, was one day marching leisurely across country with his whole army. The forenoon was hot, and not a cloud could be seen in the sky. Presently the magicians noticed a peculiarly-shaped cloud on the horizon. It rose rapidly in one mass and "rolled upon itself." Its movements were intently watched till it approached the zenith and passed over the sun. This was an evil omen. For some unknown cause the spirits were mortally offended, and had come over the army in shadow at noonday. In grief and sorrow their backs were turned upon their children, and the result of this would be certain defeat and disaster. There was, however, no immediate danger. That morning scouts had reported that there were no troops within many miles of their line of march, and they could repair to some sacred place to offer sacrifices and make atonement. While they were discussing which place to repair to for this purpose, the van of a small column of cavalry appeared unexpectedly over a rising ground. Dismay struck into every heart. The war minister urged his men to form into order of battle. No one answered his summons. He did his best to organize an orderly retreat, but in vain; not a blow was struck, and every man took to his heels, making for the nearest hiding-place in mountain or forest. That army never re-assembled. Black-hearted fear utterly demoralized it.

A few years ago something unusual had gone wrong—I do not at this moment recollect what it was—at Konke's great place. The magicians were called, and decided that a black ox must be shut up for forty-eight hours without food or water, and be released at noon on the second day. The spirits would then lead it to the river, where it would drink and put an end to the evil which was caused by malignant water demons. Thereafter the ox must be killed as a sacrifice to the spirit which led it to the water. An animal was duly consecrated for this purpose and shut up in a small fold by itself. At dead of night a young teacher, who had been trained at Lovedale, and there learned to estimate magicians at their proper value, probably out of sheer love of mischief, gave the ox a plentiful supply of water. At the appointed time the animal was released, but instead of hurrying to the river it began to graze quietly beside the fold, nor would it even be driven to the water. Konke's rage overcame his superstition for a moment, and ordering his attendants to "slay the beast," he turned to the chief magician and brandishing his assegai, hissed between his teeth, "Go from my sight, and if you let me see your face again I may forget that you are a doctor." So ended the sacrifice; not so the history of the ox. The animal was sacred for

sacrifice, and could not be eaten owing to the unceremonious manner in which it had been slain, and the dispersion of the magicians. That night the teacher, armed with a "gully," secured for himself as much beef as he could conveniently carry. Two days thereafter his missionary visited the school, and after the examination was regaled with prime beef steak, onions, and sweet potatoes. On making enquiries he heard the story as above related. Endless illustrations and examples could be given of the influence which ancestral or spirit-worship has upon the whole domestic, social, and intertribal life of Africa. It enters into the minutest details of daily work, and it influences the foreign policy of a whole people. It regulates family life, and it decides the fate of armies and the destiny of nations.

Closely connected with the doctrine of souls is that of other spirits than those of men. The spirits most commonly met with in African mythology are water or river spirits, inhabiting deep pools where there are strong eddies and under-currents. Whether they are all ever seen now-a-days it is difficult to determine, but they must at one time have either shown themselves willingly, or been dragged from their hiding places by some powerful magician, for they are one and all described. They are dwarfs, and correspond to the Scottish conception of kelpies or fairies. They are wicked and malevolent beings, and are never credited with a good or generous action. Whatever they possess they keep, and greedily seize upon anyone who comes within their reach. "One of them, the *Incanti*, corresponds to the Greek Python, and another, called *Hili*, appears in the form of a small and very ugly man, and is exceedingly malevolent."¹ It is certain death to see an *Incanti*, and no one but the magicians sees them except in dreams, and in that case the magicians are consulted and advise and direct what is to be done.

Another form of spirit may be mentioned in passing, and that is a quasi-guardian spirit attending the chief. He always has an ox which is a special favourite, and which must never be killed. By constant training and kindness it gets into the habit of leaving the other cattle whenever the chief is washing himself with medicine outside the cattle-fold. It stands close beside him and licks up all the froth, generally of an aromatic nature, spilt from the medicine basin. The spirit which guards him resides in this ox.

But to return to the river spirits. The places where they reside are dreaded and shunned, and no one cares to have

¹ Brownlee.

anything to do with them or to think of them when that can be avoided. When a person is drowned and no good cause can be assigned for the accident, it is said that he was "called by the river," which is equivalent to saying "the river demons." Any one so called cannot resist the summons, and goes underneath in obedience to their will. The magicians when they appear on the scene may prescribe a *formal* sacrifice, but the animal is not killed, nor is devotional prayer offered as in the case of sacrifice to departed souls. The animal is simply driven into the river while the magician says:—"We offer sacrifice." An alternative form of this sacrifice is that of throwing handfuls of corn into the water while incantations are repeated. At other times the magicians decide that the spirit must be pelted with stones. Men then gather on the bank, and throwing stones into the water, shout the most abusive epithets at the spirits residing there. But these river spirits are true demons, and must not be thus interfered with except when there are magicians present to avert evil. For a similar reason it is necessary, when about to cross an unknown river, to throw something, though it may not be of value, into the water, both to avoid immediate evil and future sickness or death.

Some years ago a number of Gcaleka girls were, on a fine summer day, bathing in the Bashee. One of them got beyond her depth, and began to struggle in the water and cry for help. Her companions promptly raised the alarm, and two men working close by ran down to the water's edge. She was still struggling feebly, but to the onlookers it was a clear case of being "called" by the river, and they made no attempt to save her. The body was recovered by the magicians the same day, when it was found she had been drowned in less than five feet of water. All this came to the ears of C. G. H. Bell, Esq., the English Resident, and he cited the parties, magicians and all, to appear before him in court. The two men not only admitted that they could have waded to the spot where they saw her struggling, but also said the water would not be "more than breast deep." They had made no effort to save her, as it would be "improper and dangerous to interfere when one is called by the river." Mr. Bell tried to argue them out of such absurd notions, but to little purpose, and finally came to the conclusion that "six months hard" might be more effectual in eradicating superstition than all his philosophy, and six months hard it accordingly was.

Last year a girl was drowned in a small stream called the Mbulu, and the body having lodged under a bank, could neither be seen nor recovered by ordinary means. The relatives were in despair, and having driven an ox to the edge of the water,

stood there with the magician, who prayed :—" Give us our dead. We have brought sacrifice. It is not the dead we offer, it is blood." The demons made no response, and finally the Rev. J. Davidson, near whose house the accident happened, recovered the body by diving. This he did against the most earnest remonstrance on the ground that he would himself be " called."

One other anecdote and we shall bid farewell to the river spirits. On a sultry summer's day I came to the bank of the Tsitsa, and feeling hot and wearied, resolved to have a swim in the clear and cool water to refresh myself after a long ride. I made my intention known to my groom who accompanied me, but he strongly objected that there were dangerous water snakes in the Tsitsa. I pointed out to him that water snakes do not bite, but this did not satisfy him; the snakes of this particular river differed from others. I asked him if he could show me the grave of anyone who had been bitten by water snakes. This he could not do, so I called him a woman or some such insulting epithet, and told him to attend to the horses as directed. Matters now looked serious, and standing straight before me, he said with the greatest awe and solemnity :—" The truth is, master, there is a *Tikolosh* there, and if you go in you will be called, and what am I to say to the *inkosikase* (i.e., the lady) when I go home for allowing you to go into the river?" I had my swim while my servant stood in mute terror on the bank, but had the *Tikolosh* been at home that day, these papers would never have been written.

It may be here mentioned that alongside the great footpath thoroughfares of the country there are found, at intervals, cairns or heaps of small stones. Travellers as they pass cast a small stone on these, and with uncovered head say, " Ah *sivivane*," i.e., cairn, " grant us strength and prosperity." On being questioned as to the origin and meaning of these *sivivane*, they profess utter ignorance, and say it was always so among their people. It is probable that the prayer originally was to the great spirit or the soul of the first chief of some powerful tribe, but whether spirits reside in the cairns or not, no one can tell. Certain it is that they hear the prayer of their children when they observe the customs of their country. Another method of securing good fortune on a journey is, in wooded country, to place stones in the forks of trees by the roadside, and on grassy plains to twist tufts of grass into knots. These actions are regarded in the light of devotion, and are pleasing to the ancestors, who look with favour on their children when they thus conform to custom. It has been said of Africans, and that by theologians, that they have no religion of any kind. On the contrary the whole life of an African is regulated by his

religious fears and feelings, and if these differ in every particular from our conceptions of religious feelings and devotions, it does not make the fact less real or less significant.

There is no periodical process of purging or driving away spirits, and ordinary people, without the presence and aid of magicians dare not interfere with any spirits, however malignant and destructive to life and property they may become. Better leave a locality, and take up one's quarters at a distance, than do anything calculated to enrage demons and evil spirits which may have taken up their abode in the vicinity of human habitations. It is true that every man's life is guarded by the spirits of his ancestors, but this does not protect him either from demons, or wizards and witches. His life is not bound up with any object as totem or fetish, but he carries charms or articles of ornament that have been charmed by the magician, and these afford a measure of protection. A man can obtain charms to make him successful in predatory expeditions; to obtain the favour of his chief; the favour of women, and even the death of an enemy or rival. In this latter case the charms cannot be got from recognized magicians, they must be obtained from those who practice the illegal art and capital crime of witchcraft, and when discovery follows, both parties are condemned as equally guilty. The most commonly used charm is a necklet of cow-tail hair, twisted and knotted with specially prepared bits of wood. Each charm must be "doctored" for a special purpose, and is useless for any other than the one it was intended for.

In the war of 1846 (?) the magicians gave the soldiers, as a charm against English bullets, the blue flower of a species of rhododendron. Those who carried this talisman rushed forward against columns of infantry without a shadow of fear or hesitation, and only when men began to bite the dust in all directions did the nature of the delusion break upon the army, and panic ensue.

There is a custom lingering in odd corners, but whether it was once universal I have not been able to determine. The probability is that it was, and that originally it took the form of substitution for human sacrifice, when in a very remote past the Southern Bantu tribes discontinued the practice. What led to the abolition of human sacrifice it is impossible to determine, and conjecture is in all such cases unsatisfactory. It has been thought that decimation by war and disease so thinned out the population, that human life became too valuable to be destroyed with such awful frequency as sacrifices in time of war and distress demanded, and that an alternative form of offering was adopted. The custom referred to is as follows:—All sickness, misfortunes, and great loss or calamity must be

referred to the magicians. Their ordinary custom is either to "extract the disease" or to "smell out" the person who has bewitched the patient. Instead of adopting the latter practice, they sometimes state that the cause of the evil is a domestic animal, cow, ox, or bull. The beast must be killed by the magician's own hand and cooked at once. The flesh must be eaten at sundown, and the sick man must be the first to taste and partake of it. No portion must be removed to another dwelling, nor may the bones be given to the dogs, as is usually done. They must be carefully collected, and as carefully burned to cinders. It is also possible for the chief when a person is "smelt out" by the magician, to order an ox to be substituted for the victim and treated in the way above described. This is the only approach to the idea of a scapegoat of which I have heard, and the practice is far from common. I am not aware of one animal ever being substituted for one more valuable or difficult to procure.

When sacrifices are offered to the spirits of a man's ancestors or to the spirit land generally, as in the case of death by lightning, the idea is that the whole of the animal sacrificed is offered up, as well as the portions of bone and fat burned. The manner of procedure is as follows:—The flesh is cut up into small pieces, no portion being wanting, and placed in a hut, where it lies in a heap for a whole night. During the darkness the spirits feast on it and withdraw the "essence," which constitute spirit fare. On the following day it is cooked and eaten in the usual way. Among some tribes there is a custom of killing a bull as a special new year offering, and I notice this more to illustrate a peculiar manner of slaughtering the animal than as a national institution of any importance. After it is caught and thrown down, the left (?) fore-leg and shoulder is sliced off, and then the animal allowed to go and limp about on three legs. The flesh of the dismembered limb is immediately par-broiled on hot fires previously prepared, and eaten or swallowed at once, the bones being thrown into the fire as the flesh is torn from them. After this is done the animal, if not already bled to death, is dispatched and dressed in the usual way.

Heavenly bodies.—The science of astronomy is in a very primitive condition in Africa, and though we find every man a shrewd and accurate observer of certain weather signs, as well as the appearance and disappearance of stars as the earth travels on its course round the ecliptic, no explanation is offered beyond saying that at such and such a season a star, recognized and named, goes away to return again after so many moons.

Of creation they have no theory, for the simple reason that the earth and the heavenly bodies have always been as we see

them now, and that they will thus always continue, unless some terrestrial catastrophe should set the whole on fire, or in some other way "disperse everything."

The earth is an extended plane, and may be round-shaped like the sun and moon, probably is so, but no one can tell, as men have never been to the edge to walk round the circle and look over. If anyone did so he would become giddy by looking down into the chasm, and fall into the abyss. A hole, if it were only deep enough, would go through the earth, and anyone falling into it would fall through into empty space. The sun, when he sets, goes through the sea, and, having gone round underneath us, comes up on the other side. The moon gradually wastes away and dies, and the new moon is a true new moon, and no reappearance of an old worn-out orb that has done previous service. The particles wasted from the old moon are lost, and do not go to build up the new, but how the young moon grows, or from what substance, "men do not know, and the spirits have never told." Eclipses foretell great evils, but it is not known what they are, and nothing can be done to avert them. It is sometimes said that an eclipse is a sign that the world is coming to an end, but this is inconsistent with the universal belief in the stability of the physical universe, and may be an idea which has filtered into the native mind through the influence of European thought in other but allied directions.

Thunder is caused by a very large mythical bird clapping its wings, and lightning is its excrement when purged. When lightning strikes any object, such as a dwelling, cattle-fold, or tree, the bird itself has descended, and again reascends in an invisible mist. Its descent is for the purpose of laying its eggs, and if these are not destroyed by the magicians, they are hatched and breed more thunder birds. The eggs, like the bird, are invisible.

A rainbow in the west indicates that there is to be no more rain for the present—this is simply the general result of observation—if in the east there is to be hail. When an extremity seems to rest on a pool or stream, no one will bathe at the spot, nor are women allowed to fetch water from it while the rainbow is supposed to remain there, which is a varying period. "Should anyone go to the spot they would find there a large basin, and in it an Incanti, which would swallow them in a heap."¹

Long continued wind is caused by evil people, wizards, and witches. These it is the business of the magicians to discover and expose. Rain is under the control of the professional rain

¹ Sutton.

doctors. When no rain falls after the usual ceremonies, the doctor may accuse anyone of "stopping the rain by raising his posterior to the clouds."

Earthquakes portend frightful wars, in which all known tribes are to be involved. The origin and course of the war cannot be foretold, and nothing can be done to avert the coming calamity. During the present century earthquakes have been almost unknown in South-East Africa, and the accounts of them are almost purely mythical.

Origin of death.—Man came from the never-dying *Sudiwa*, but how, no one can tell, and after he had been a long while in a certain place, the chameleon was sent with a message to say that men were not to die, and immediately left upon its errand. The *Ntulo*—a species of lizard—overheard the instructions given to the chameleon, and resolved to avenge an old grudge by discrediting the rival and favourite that had been entrusted with so important a commission. Being swift of foot, the *Ntulo* waited till the messenger was well on his way, and then travelling by another route, arrived while the chameleon was still struggling in the marshes. The message he then delivered was that the *Sudiwa* had said men were to die as all animals die. When the accredited messenger appeared to deliver his commission, he was met with insult and scorn. To him man said:—"Go, false one, we have already heard the words of the great *Sudiwa* from the *Ntulo*, and many men have died." Thus was the chameleon disgraced, and the *Ntulo* made famous.

When men die the body is dissolved and disappears for ever. There is no future or general resurrection possible, and certainly not after the body has become amalgamated with the earth in which it is buried. The dead may, however, be raised after burial by wizards and witches, but such reanimated bodies do not reappear among their former associates, nor do they take any interest in ordinary human affairs. They wander, partially bereft of their senses, in forests and swamps, and inhabit damp and dismal caves. This explains the custom of watching all graves, and why the grave of the chief must be watched and guarded night and day for years.

Miscellaneous customs.—Sneezing is a sign of good luck, prosperity and fortune. Stepping over another is highly improper, and anyone guilty of it will fall in battle should he be called upon to go to war. If a woman steps over her husband's stick he cannot aim or hit anyone with it in a village brawl; it is simply useless for its proper purpose. If she steps over his assegai, it will never kill or even hit an enemy, and it is at once discarded and given to the boys to play and practice with. A woman must enter and leave a *kraal*—the huts and cattle-fold

composing a man's dwelling or steading—by prescribed paths, and must not enter the fold among the cattle, nor in any way interfere with their milking or feeding. Wizards and witches may bewitch from a foot-print, or from the impress of the body in sitting or lying upon the ground. To this there is not much importance attached, but finger nails and hair when cut must be carefully kept and buried.

Should anyone, supposed to be an enemy, be near when a man has occasion to retire, he will travel a long way from his house to some secluded and hidden spot. It is always customary to observe a practice resembling the Levitical enactment respecting the pointed stake.

Uneven numbers are unlucky, and on special missions from a chief odd numbers of councillors are never sent. Evil spirits hover about the unmated member of the party. These take the form of baboons, wild cats or owls, and when any such creatures appear away from their usual haunts, it is a sure sign of evil in the air. Elephants are greatly revered but not sacred. "When a hunter hurls his spear at one he accompanies it with the words 'pardon me'."¹

If a man is in hiding for a crime he defies detection by chewing the leaves of a plant known locally as the *umfingwane*, and charms carried about by a man stealing, prevents his being caught, even if seen by many persons. Africans never spit in a strange house. The spitter would be accused of bewitching the place. In a man's own house saliva must be carefully swept away or obliterated to prevent wizards getting hold of it to mix with their medicines.

Men and women never mention their own names if anyone else can be got to do it, but they do not absolutely refuse when it cannot be avoided. Wives never mention the names of their husbands, nor daughters and sons-in-law that of their parents-in-law. Children may mention their parents' names. The chief is never spoken of by his name. Either his title or his father's name is invariably used. The chief's name is usually changed on arriving at manhood, and a warrior's name is often changed after doing deeds of valour, and one less or more descriptive of bravery adopted. Names of common objects are changed by tribes and for various reasons. Should a chief's name be the same as a common object the name is changed. "One chief was called *Langa*—the sun—and in that tribe the name of the sun was changed to *Gala*, and so remains to this day, though *Langa* died more than a hundred years ago."²

During war a wife will often take her sleeping mat and place

¹ Brownlee.

² *Ibid.*

it against the door of her hut. If the shadow shows sharp and clear her husband is alive and well, but if not, "he will never look upon the sun again." A warrior who twists tufts of the hair of the common rat with his own has all the chances of avoiding the enemy's spear that the rat has of avoiding an object hurled at it, and this causes rat hair to be in great demand when war is expected.

At the end of the year all the men of certain tribes procure a strong emetic which they swallow, and cases have been known in which the magicians ordered the men to make a pilgrimage to the sea and swallow quantities of salt water for this purpose. No special reason is given for the custom except that it "clears away all the evil humours of the body." Before the war of 1877, warriors were directed to make a pilgrimage to the sea-side for this purpose in order to make them strong and valorous against the English, who had their strength in war through having come "out of the sea in their ships."

In some cases of illness the relatives, instead of calling a magician, drive all the cattle up to the sick man's door. A relative then in a loud voice shouts to the ancestors to say what is the cause of illness, and indicate a remedy. The first beast that makes water is selected as a sacrifice, but before being slaughtered it is probed sharply with an assegai, and if it bellows it is the right one. A large gash is then made in its side into which a man inserts his hand, and laying hold of the abdominal aorta, tears it away and breaks its walls. Some fat is extracted and burned while the beast is dying. After it is dressed the right front shoulder is detached and taken into the hut, where a portion is broiled on embers and given to the sick man with medicinal ingredients. This remedy is supposed to be most efficacious in many instances.

When twins are born the father plants two euphorbia trees near the door of the hut, but I am unable to say why this is done. An unmarried woman on the seventh day after the commencement of the monthly period takes a handful of ashes from the village heap and eats it. A cow must be milked for her by her brother, and porridge made with the new milk, of which she partakes on the same day that she must eat the ashes. "Chastity in married women can hardly be said to exist among the coast tribes. . . . Still chastity has a value in the estimation of the men, as is proved by the care and jealousy with which the harems of great men are guarded."¹ Adultery in the case of those so guarded is often punished by cutting off the right ear of both parties, while the man may suffer penalty as

¹ Theal.

an eunuch. Mrs. Sutton writing from Bacaland in August last says, "Ten days ago a woman belonging to a closely guarded harem and who had been found guilty of adultery, was put to death and her body left to be devoured by dogs or vultures."

In time of war the body of the first enemy killed is mutilated and a powder made as described in connection with initiatory rites for admission into guilds. This the war doctor rubs into a small incision made in the forehead of each warrior, to infuse strength and courage for the conflict. When peace is proclaimed it is usually ratified by an exchange of large presents of oxen, as many as one hundred being often sent by one chief to another.

As I write, one minor custom after another recurs to my mind, but a great number of these ceremonious usages of daily life are of little significance and of hardly any value except for purposes of comparison, as no reason is ever assigned for them except that most convenient of all reasons, "our people have always done so."

A very curious custom is observed by messengers sent by chiefs when on a long journey. It is customary to honour such by killing a sheep or goat where they halt for the night. The bladders are all given to the messenger, and these on his return he forms into a kind of coronet which he wears for many months. The larger the number of bladders the greater man he is. The head-dress has an unusual appearance, and is suggestive, if not of much feasting, at least of much slaughter. It should have been mentioned elsewhere that women are as often magicians as men.

Before concluding this very partial sketch of African customs, I wish to refer to a few facts not included in Mr. Frazer's questions, and to which I have adhered as closely as I conveniently could. The large field of arts and manufactures has not been touched upon, nor has any reference been made to the monuments left, in place-names and paintings, by the tribes displaced, centuries ago, by an advancing wave of conquest from the north.

Mr. G. M. Theal, in his admirable little book, "Boers and Bantu," says of South Africans generally:—"The most prominent virtue of the Bantu tribes is devotion to their chiefs. Unquestionably this devotion retards their civilization; unquestionably also it has caused enormous loss of blood and money to Europeans and this country; nevertheless, it is a virtue in them. It is the bond that holds society together. . . . Another noticeable feature is their hospitality to equals and superiors. To so great an extent is this carried that food may almost be said to be common property. . . . Anyone passing by at

meal-time, friend or stranger, provided he is not inferior in rank, sits down without invitation or ceremony, and shares in the meal. In most villages there is a hut set apart for the accommodation of strangers." Of this last trait of character I had ample opportunity of forming an opinion during the last three years I spent in Africa. My duties brought me frequently into contact with a large number of chiefs and sub-chiefs, and the nature of my business was not always very agreeable to them, but I was received with unvarying courtesy, and every hospitality was shown. No sooner was my intention to pass the night at a village known than a messenger was dispatched to slaughter a sheep, which, when dressed and cleaned, was presented to me whole. The left shoulder, as the joint of honour, is in such cases invariably returned to the chief. On one occasion I had to visit the chief of the Xezebis. From the Thursday evening till the following Monday morning we waited for the formal reception, but then it was worth waiting for. At the appointed time the old chief, Jojo, appeared with two thousand mounted men to do us honour. Before we separated he had given me land, fully understanding what he was doing, to the value of £1,500 at least, for the use and benefit of the Scottish Mission.

Speaking of another phase of character Mr. Theal says in the book already quoted, "The deceptive power of all these people is something wonderful to Europeans. But there is one member which the coast native cannot control, and while, with a countenance devoid of all expression, he relates the grossest falsehoods, his lively eye betrays the passions he is feeling. Truth is not a virtue that one, who knows what savage life is, would expect to find in a Bantu." Of the truth of the above paragraph I have also had ample means of judging.

All the tribes were, when first encountered by Europeans, acquainted with the use of iron. This they smelted from its native ore, and formed into weapons of war and implements of husbandry. The smith's art was generally hereditary in families, and they displayed considerable skill in certain branches of metal work. All their skill was given to the manufacture and ornamentation of arms, and many of these were as neatly finished as they could have been by an European workman. In the manufacture of articles from wood they had made no progress, and fire was the principal agent used in shaping spoons and knobbed sticks. The construction of any article requiring different pieces of wood jointed together was beyond them. Building with stone was practically unknown except among the mountain tribes, who formed cattle-folds with uneven blocks piled one upon another. The African has added little to the stock of knowledge with which man set out after

the great dispersion on the plain of Shinar. He has wandered hither and thither over the face of the continent, and has been sorely tried in the struggle for existence, but he has never relaxed hold of his stock-in-trade if he has not been able to add to it. To make a fire, smelt iron, whittle a bow and feather an arrow, to char and dig out a tree trunk for a canoe, to make a net for bird, beast, and fish, these seem to sum up his accomplishments, if to them we add one other, the skill to brew. Brew he must, and brew he does, and this it is which cheers his otherwise dull and common-place life. When galled by the fetters of custom and the fear of goblins, ghosts, and evil spirits, he can, sitting beside his chief's beer tub, defy them one and all, and he can even declare his willingness to meet an Incanti in single combat. But his elation and freedom of spirit is, alas ! short-lived. On the morrow he must, in sackcloth and ashes, invoke the aid of the magician, and do penance for his too daring departure from custom and his defiance of those whose power over his whole life is infinite.

At one time a great portion of South-east Africa was occupied by Bushmen. They were wandering and homeless savages, but they have left behind them a record of occupation which has hitherto defied the ravages of time. On the rocky sides of their cave dwellings they were in the habit of making rude paintings of men and animals. The pigments used were white, terra-cotta, and dark brown, verging on black. Several of these cave paintings I have seen and examined minutely, and in every case found the colours, when washed and cleaned, as fresh and perfect as when left by the primitive artist. When the late Sir Bartle Frere was Governor at the Cape, he spent a short time as my guest at Blythswood. I mentioned to him the existence of a "Bushman's cave" in the neighbourhood, and we afterwards inspected it together. He was greatly interested in what he saw. Subsequently a well-known American lady artist visited Blythswood, and at my request made careful and accurate copies of all the paintings in the cave. These I sent to Sir Bartle Frere, and he either gifted or lent them to some museum in London, but which I am not certain ; South Kensington, I think. I am not aware that any other really able artist has had an opportunity of seeing and copying any of them.

There is a curious theory current among a number of South African tribes regarding their own origin as separate peoples. Universal tradition points to the north as their original home, but how they wandered away from it is seldom explained, and many profess entire ignorance as to the causes which led to a change of country and home. The tradition referred to accounts for the migration as follows :—

The great chief whose people occupied the whole of the centre of Africa, and whose name was Uhlanga, had a law forbidding women to marry before a certain age on pain of direst punishment.

Long ago, "so long that all memory of their exploits is lost," Uhlanga sent a great army, the greatest ever mustered at one time, on an expedition towards the south. This army, which was to be absent a long time, and was to conquer all peoples to the farthest sea, was accompanied by numbers of young women as cooks. After an absence of three years, during which the army met and destroyed a very great number of tribes, the waves of the sea stopped its advance. The soldiers then gave themselves up to rest and enjoyment, and only after they had grown fat eating captured cattle, did they think of their homes and their children. After the march northwards was continued many days, it was found that all the girl cooks were *enceinte*.

This caused consternation and terror among all ranks, and, for fear of punishment and death, the whole army retraced its steps towards the south, and arrived in the country of the Bushmen. There the generals divided the companies between them, and settled down to the pursuit of agriculture. They never had any tidings of their wives and children, nor did any of them return to their old home. Uhlanga thought that his army had perished, and never again sent an expedition to that country.

The resemblance of this tradition to the well-known classical story is so close as to make one at first doubt its originality, but it is found among those peoples who have had least contact with Europeans, from whom alone they could learn the legends of the days when Rome was young.

When questioned regarding distances, and the time it would take to travel "to their home," in connection with such traditions as the above, the African's ideas are altogether hazy. He has no conception of the extent of his own continent. He understands nothing of lands beyond the sea, and all questions regarding navigation resolve themselves into magic and dark arts known only to white men.

Turning from tradition and legend to the daily life of the African, we find that the apparently easy and aimless life of the village is one of elaborate ritual and rigid adherence to forms, and this enters into all relations of life, public and private.

When special fire is used, either in connection with sacrifice or the festival of first-fruits, it must be produced by a doctor and in the following manner:—Two sticks made of the *Uzwati* tree, and called the "husband and wife," are given to him by the chief. These sticks are prepared by the magicians, and are

the exclusive property of the chief, the "wife" being the shorter of the two. The doctor cuts a piece off each stick, and proceeds to kindle fire by friction in the usual manner. After he has obtained fire, he hands it to his attendant, who gets everything ready for setting on the pot. The sticks are handed back to the chief by the doctor—no other hand must touch them—and put away till again required for a similar purpose. They are regarded as sacred, and no one, except the chief's personal servant, may go to the side of the hut where they are kept. A special pot is used for the preparation of the feast, and no other than it may be set on a fire produced from the "husband and wife." When the feast or sacrifice is over, the fire is carefully extinguished, and the pot placed along with the sticks, where it remains untouched till sacred fire is again kindled. This custom is not now universal; it probably was so at one time.

It is highly improper to kindle a fire in certain circumstances. There is a legend that when Unsha arrived in what is now Natal, having been preceded by a division of his army under his eldest son, he saw smoke rising as from a newly-kindled fire. He sent to enquire whose doing it was, and, being told his son had kindled it, he sent for him and addressed him thus:—"From this day you are no longer heir to the chieftainship of my people. Your first act on entering the enemy's country was to make a fire. That shows you will destroy my people." His second son was appointed heir, and he, in turn, offended his father by giving an order, the result of a foolish whim, that the first milk from every cow that calved was to be brought to him. The verdict in his case was:—"You rob the calves. When you are old you will suck blood." The third son was appointed heir, and became his father's successor.

When a man has been slain in war, the doctor visits the village and prepares medicine, which he mixes with fat and small chips of an exceedingly bitter tree—sneezewood. This he sets on fire in his hands, and blows the smoke over the relatives and assembled friends. The smoke drives away the assegai from them, and no further calamity happens.

When a married woman dies the husband eats bitter herbs, and goes out for several days tending the cattle, returning home after dark. When a husband dies, the widow goes away from home, and remains on the open plain or mountain for ten days, irrespective of the condition of the weather. If he falls in battle, she secludes herself ten days in her hut.

Among certain of the mountain tribes there is a curious custom regarding an enemy who falls after displaying conspicuous bravery. They immediately cut out his heart and eat it. This is supposed to give them his courage and strength in

battle. The man who slays such an enemy is, at the close of the war, called before his chief, and gets from the tribal doctor a medicine which he chews with his food. The third day after this he must wash his body in running water, and, at the expiry of ten days, may return to his wives and children.

Women are at times forbidden to eat flesh from the foreleg of any animal. Ox tongue is at all times forbidden to women. A newly-made bride may not eat the flesh of bulls, nor may she eat flesh from the ribs of any animal. During menstruation women may not taste milk; if they did the cattle would die. The lungs, neck, and breast parts are eaten by boys only, while men are forbidden certain portions of the entrails. The head of the household never quite finishes what he has on his plate, and the eldest son is the only one who is allowed to take what is left and lick the plate.

At public entertainments, if a man of inferior rank is appointed by the host to wait upon guests of tribal standing, they will not accept food at his hands. The usual custom at large gatherings is to appoint one from among the guests to act as master of ceremonies, as regards his tribesmen. I once got into a curious difficulty through neglect of the correct etiquette. At a church opening at Somerville, about one thousand persons were present, representing six or eight distinct tribes. A man was appointed to wait upon a party of Pondomise, whom they regarded as not only of inferior rank, but an upstart from another tribe who wished to be recognized as a subordinate chief. Not a man would taste the food provided, and only after profuse apologies and explanations, tendered in the most public manner, could their wrath be appeased. The error was excused on the ground of my "ignorance of custom," and after that, good fat beef did the rest, and all dispersed in great good humour.

There is among the Bacas a curious custom in connection with courtship and marriage. A young man first tells some of his friends that he admires a certain girl, and after a stated period he speaks to her and says he would like to *Twala*, i.e., carry her off. If she is agreeable to this *twala* she mentions a day, and he then carries her off by stealth to his parents' village. Whether his parents like it or not they cannot possibly, under the sanction of custom, refuse to receive her, and she remains at their village for three days under their care and guardianship.

On the third day she is returned to her father's house with the dowry cattle. If he accepts the cattle, the marriage is arranged to take place at an early date, and her lover does not see her again till the ceremonies are over. Should the girl's

father refuse the cattle and return them, the affair takes end. The young people are not in any way consulted regarding their feelings in the matter, nor does it ever occur to an African that this should be done under any circumstances.

The men of the Pandomise tribe have an extraordinary method of dressing their hair. The framework of the head dress is formed by placing a small ring of grass on the crown of the head. The hair is then well rubbed into the grass with fat, and securely sewn with thread made from the sinews of an ox. It is then greased and dressed every day, and the circlet rises with the growth of the hair till it attains an elevation of several inches above the head. It is never removed till colonies are formed under its dense mass, and when these become numerous, the man whose head gear was the pride of his life, appears with clean-shaven pate.

To the European who studies native manners, nothing is more marvellous than the force of custom and the power exercised by magicians. Their predictions may fail, thieves may go unpunished, rain may not fall, patients may die, but the magicians remain a sacred order, and every failure is explained away, and the fetters of custom remain unbroken. There are a few shrewd men who value the whole genus of magicians at their true worth, and who, from motives of policy rather than faith, observe the ancient customs. Such was my old neighbour, the Gcaleka chief, Segidi. A conservative beyond most in all matters of traditional usages, he was fully alive to more modern methods of conducting his business. While his war doctor was in a trance waiting for communications from the spirit world regarding the success of an expedition, Segidi's spies travelled the whole length of the enemy's country and brought him back an accurate report of the probable strength of the opposing force and their tactics in the field. Again, while liberally rewarding his tribal priests for warding off evil and upholding the traditions, he came to me with three of his sons to send them to school at Blythwood, where they remained for years, to return carrying with them that which never can be assimilated with the old life, be they professed Christians or heathens.

Native Africans have great attachment to their children, and bestow much care on their training. The heir of the house is his father's constant companion. From earliest years he is instructed in all the traditions of his family, and the history of his tribe. He is educated in the theory and practice of law, and learns to recite songs commemorative of deeds of valour. Hatred of traditional enemies is instilled into his mind from the first dawn of intelligence, and he grows up with all the feelings

of rancour cherished by those who were first wronged by the people he is taught to hate. Duplicity, falsehood, and cunning are among the virtues instilled into his mind by those who have charge of his education.

Even in his sleep the African must observe the customs. A man must never sleep on the right hand side of the bed when he occupies the same bed with one of his wives. He must not touch her with his right hand; if he did he would have no strength in war, and would surely be slain.

The newly-arrived traveller gets a bit of fat with which to anoint his weary limbs. He sits in a particular place at meals, and has a servant set apart to wait upon him. If a man of note, a sheep or ox is killed in his honour, and the whole carcass presented to him. He returns the left foreleg to the chief or head man, and the remainder he keeps for himself and his attendants. All the years I spent in Africa, I never slept at a chief's village without having a whole sheep presented to me. I have, however, in turn presented a good many to distinguished visitors at the Mission.

It is difficult to exhaust the customs and small ceremonial usages of a savage people. Custom regulates the whole of a man's actions—his bathing, washing, cutting his hair, eating, drinking, and fasting. From his cradle to his grave he is the slave of ancient usage. In his life there is nothing free, nothing original, nothing spontaneous, no progress towards a higher and better life, and no attempt to improve his condition, mentally, morally, or spiritually.

These papers have already exceeded their intended limit and all reference to social gatherings must be omitted, and so must also the customs in building houses, irrigating land, breaking up new ground for cultivation, marking and ornamenting cattle, the reception of strangers and foreigners, the currency before the introduction of beads, buttons, brass wire, and finally coins, the daily routine of village life, regulations for keeping the peace among a multiplicity of wives; these and many other facts are all worthy of study by the anthropologist and historian, as are also such customs as forbid cutting timber while the crops are green, now a religious observance, probably originally a wise forest law in regions where it was difficult to procure timber. Over these things I seem to linger. They belong to the past in my own life, and looking at them now, in view of all the disintegrating forces at work, one feels that they are rapidly becoming a shadowy memory in regions where once they were regarded with an awe and veneration, which gave them the dignity of a national religion as well as an ancient and time-honoured philosophy.

MARCH 25th, 1890.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the following gentlemen was announced :—

Professor JOHN CURNOW, M.D., of 3, George Street, Hanover Square, W.

Dr. WILBERFORCE SMITH, of 14, Stratford Place, W.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From the AUTHOR.—*Essays of an Americanist.* By Daniel G. Brinton, A.M., M.D.

— *Note sur l'homicide par flagellation.* Par le Dr. Barret.

— *Note sur une statue ancienne du dieu Çiva, provenant des ruines de Kampheng-Phet, Siam.* Par le Dr. E.-T. Hamy.

— Alexander Brunias. *Courte Notice sur son œuvre.* Par le Dr. E.-T. Hamy.

From the SMITHSONIAN INSTITUTION.—*Proceedings of the United States National Museum.* Vols. x, xi.

— *Bulletin of the United States National Museum.* Nos. 33-37.

From the GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.—*Annual Report. (New Series.)* Vol. iii, Parts 1, 2.

From the Right Hon. the SECRETARY OF STATE FOR THE COLONIES.—*Statistics of the Colony of New Zealand for the year 1888.*

From the ACADEMY.—*Bulletin International de l'Académie des Sciences de Cracovie.* 1890. No. 2.

From the INSTITUTE.—*Annual Report of the Canadian Institute, Session 1888-9.*

From the SOCIEDADE CARLOS RIBEIRO.—*Revista de Sciencias Naturaes e Sociaes.* Vol. i. No. 3.

From the SOCIETY.—*Journal of the Society of Arts.* Nos. 1947-1948.

— *Proceedings of the Literary and Philosophical Society of Liverpool.* Vols. xli-xliii.

— *Arhiva Societății Științifice și Literare din Iași.* 1890 No. 4.

From the EDITOR.—*Nature,* Nos. 1063, 1064.

— *Science.* Nos. 370-371.

— *Revue Scientifique.* Tom. xlv. Nos. 11, 12.

The following Paper was read by the Author:—

THE OLD BRITISH "PIBCORN" or "HORNPIPE" and its affinities.

By HENRY BALFOUR, Esq., M.A., F.Z.S.

[WITH PLATES II AND III.]

THE primitive wind instrument known by the name of "Pibcorn, Pibgorn, or Piccorn," now obsolete, has been but rarely described, and still more rarely figured, as specimens of it are now extremely scarce. There is evidence of its considerable antiquity in Great Britain, and most authorities regard it as of purely indigenous origin. Sir John Hawkins¹ says that the "Hornpipe" was invented in this country, and Fetis² mentions Angelsea as its place of origin. A comparison, however, of this interesting instrument with others of a similar primitive nature, seems to afford considerable evidence that its presence in great Britain was due to its transmission westwards over Europe from the East.

The Pibcorn is identical with the "Hornpipe" of some authors, the dance known by the latter name being, without doubt, derived from the instrument which was formerly usually employed in its accompaniment. An analogous case of the name of a dance being derived from a musical instrument occurs in the word "jig," derived through the French "gigue" from the German "geige," a fiddle.³

Somewhat similarly the term "Musette," originally meaning a "little pipe" or small Cornemuse of special form, came by an ordinary ellipsis of language to be applied to a piece of music written in the style of bagpipe music.⁴

The Pibcorn is by some writers called "Cornpipe," or "Cornepipe," but all these are merely varieties of the same word; *pib*, in Welsh; *piob*, Gaelic; *pipa*, Swedish; *pipeau*, French; *pfeife*, German; and *pipe* in English, being all modifications of the same; and similarly *corn* is allied to *κέρας*, cornu, and corne, and refers to the use of *horn* for some part at least of the instrument.⁵

¹ "History of Music," 1776.

² "Histoire générale de la Musique," 1874, vol. iv, p. 280.

³ *c.f.*, "King Horn," a Romance, ed. by J. R. Lumley, Early Eng. text Soc., 1866, line 1465—

"Rymenhild hit gan ihere
And axede what hi were:
Hi said hi weren harpurs,
And sum were *gigours*."

⁴ Stainer, "Music of the Bible," p. 119.

⁵ Stainer, "Dictionary of Musical Terms."

There are various mentions of the Hornpipe by the older writers.

Spenser¹ gives us the following passage—

"Before them yode a lustie tablere,
That to the many a horn-pype playd,
Whereto they dauncen eche one with his mayd.
To see those folks make such joyysaunce,
Made my heart after the pype to daunce."

Ben Jonson, in the "Sad Shepherd,"² too—

" . . . , to awake
The nimble horn-pipe, and the timburine."

And earlier still, Chaucer in his translation, the "Romaunt of the Rose"—³

" . . . Yit wolde he lye
Discordaunt ever fro armonye,
And distoned from melodie,
Controve he wolde, and foule fayle,
With hornepipes of Cornewaile."

Some writers assert that Chaucer wrote *Corn*-pipes as his translation of the "Chalemeaux" or "estives" of the original (written in the year 1260), but Sir John Stainer⁴ points out that probably "Chalemeaux," like the Latin form *calamus*, means a reed, and does not here refer to cornstalks.

It is true that pipes made of cornstalks are mentioned very frequently, and appear to have been used very largely by pastoral people. Such primitive instruments may doubtless be considered as the origin of all pipes with beating reeds, and to have suggested the higher forms, of which the pibcorn, and many other instruments to which I shall presently refer, are examples.

A rough and primitive pipe made of a small reed or green cornstalk, closed by a node at the upper end, and with a small strip slit off, but remaining attached by one end to form a vibrating tongue, is one of the simplest, and probably one of the earliest invented of wind instruments. To this class of simple pastoral instruments we must probably refer the origin of all instruments of the clarinet order, with single or beating reeds.

In like manner the oboe, shawm, or waits, should be referred to a similar simple instrument of reed or cornstalk, in which the mouth end is not slit to a vibrating tongue, but *pinched* together, thus forming a rough "double reed," on the oboe principle.⁵

¹ "Shepherd's Calender," May, line 22.

² P. 259, of Gifford's edition, 1816.

³ Alline edition, lines 4246-4250.

⁴ "Dictionary of Musical Terms," p. 228.

⁵ E. Naumann ("History of Music") says that the "Schallmey" is derived from

Virgil¹ speaks of the use of a simple corn pipe—

"Tityre, tu patulae recubans sub tegmine fagi
Silvestrem tenui musam meditaris avena."

So Chaucer² also—

"And many a pipe and liltyng horne,
And pipes made of grenè corne
As have these little Herdegroomes
That kepin beastes in the broomes."

Spenser³ mentions oaten pipes many times—

"I sawe Calliope with Muses moe,
Soone as thy oaten pype began to sounde,
Their ivory lutes and tamburins forgoe."

and⁴

"Rude ditties, tunde to shepheardes oaten reede."

Shakespeare has this line—

"And shepherds pipe on oaten straws."

When a larger reed is substituted for the slender cornstalk a superior instrument can be made; with a removable mouth-piece, cut from a smaller reed, slit to form a vibrating tongue of the simplest kind as before, and with finger holes more or less carefully tuned to a scale. In this stage there are several modern representatives, as, for example, the "*Argheel*," and "*Zummarah*" of the Arabs in Egypt, which have double pipes, while others consist of a single pipe only.

The instruments of the "Hornpipe" class are but slight improvements upon this simple and early form. In his work upon the "Musical Instruments in the South Kensington Museum,"⁵ Carl Engel figures a Welsh "Pibcorn," lent to the Museum by C. Wynne Finch, Esq., said to be of the early eighteenth century. It is described as made of horn, measuring about 18 inches in length, and having seven finger holes (only six appear in the figure, so probably the seventh is a thumb hole placed at the back). At one end is an expanding and slightly curved bell-mouth of horn, the outer edge of which is *serrated*; at the

the calamus (Roman reed pipe). "It is found in its most primitive form amongst the peasants of the lower Rhine, where it is known as the May flute. It is made by youths in the spring, of green reeds or the soft bark of trees, and possesses a soft dreamy tone, not unlike the schallmeyer register of the clarinet."

¹ Eclogue I, lines 1 and 2.

² "House of Fame," Book III, lines 133-136.

³ "Shepherd's Calender," June, line 57.

⁴ *Ibid.*, December, 14, 5; also January, 72; February, 40; October, 8, 56, 118; November, 24, 71; December, 142; also "Colin Clout's come home again," lines 5, 13, 360, and "Astrophel," 1, 44, &c.

⁵ 1874, p. 293.

other end is a wide mouthpiece or air chamber, also of horn, which conceals and protects the delicate reed. This reed is described as resembling that of the *hautboy*. Stainer,¹ too, describes the hornpipe as an instrument "of the *shawm* or *waits* character," that is, having an oboe reed. This form is probably a comparatively late variety of the instrument.

Another specimen of the Pibcorn from Angelsea, and, as I believe, one of an earlier type, is figured and described by the Hon. Daines Barrington in the "Archeologia" for 1779. I give reduced copies of his figures (Figs. 7, 8, 9, Pl. II). This instrument in general character very closely resembles that figured by Engel; the pipe is proportionately longer and narrower, and is of *reed*, with six finger holes in front and a small thumb hole at the back. The bell-mouth of horn is exactly similar to that in Mr. Wynne Finch's example, even to the serrated edge, and the mouth-piece of horn bears the same resemblance to its fellow in the other.

The chief difference between the two specimens is seen in the reed, which is not on the oboe principle, but on the *clarinet* principle. It is a "beating" reed, formed by slitting the small reed-piece from above downwards, leaving the lower end of the vibrating tongue, thus formed, fixed, after the fashion of the cornstalk or Arab reed pipes, mentioned above. I think that this is the original form of the reed of this instrument for reasons which I shall presently explain.

With regard to the distribution of this instrument; it was, no doubt, at one time widely distributed, but we have mention of it only as occurring in Wales, Cornwall, Lancashire, South Scotland, Ireland, and also in Brittany. It was especially favoured by the rustics in the Island of Angelsea—Daines Barrington having obtained his specimen thence, where he heard the instrument played upon. He mentions that it was then scarcely used in any other part of North Wales except the Island of Angelsea, where Mr. Wynn, of Penhescedd, gave an annual prize for the best performer. He adds, "The tone, considering the materials of which the Pibcorn is composed, is really tolerable, and resembles an indifferent hautboy."

Edward Jones² mentions a Welsh instrument of allied form: "a sort of pipe used in some parts of South Wales, called *cornicyll* (from *cornig*, a diminutive of corn), which has a concealed reed on the same principle as the *pibgorn*, and the mouth-piece screws off in order to introduce the reed; in other respects this instrument is made like a common clarinet." This

¹ "Dictionary of Musical Terms," art. "Hornpipe."

² "Musical and Poetical Relicks of the Welsh Bards," 1794, quoted by Engel.

probably closely resembled Daines Barrington's pibcorn, with its "clarinet" reed.

I have not succeeded in finding any original mention of the occurrence of the hornpipe in Cornwall, though Sir John Stainer¹ quotes this locality in his list. Some writers assert that the word cornpipe is equivalent to "Cornwall" pipe, but this appears highly improbable. It has occurred to me that possibly Chaucer is responsible for the introduction of Cornwall into lists of localities in which the pibcorn has occurred. In the passage from the "Romaunt of the Rose," quoted above, the word "Cornewaile" appears as his version of "Cornouaille," as it is in the French original. Without reference to the original it might well be supposed that Chaucer referred to Cornwall, whereas the original, *Cornouaille*, no doubt refers to the district in the south-west of Brittany of that name. Sir John Stainer, to whom I mentioned this point, kindly tells me that he quite concurs with this opinion. In spite of this, on the other hand, Cornwall is a district to which one would turn in seeking for instances of the survival of a Keltic instrument, and it is a matter for surprise that there should be no recorded instance.

The "Lancashire Hornpipe" is mentioned in *The Tatler* (No. 157, April 11th, 1710), but I have been able to find no description of this form, and cannot say whether it differed from the Welsh.

It is represented in Scotland by the "Stock-horn." In Jamieson's "Scottish Dictionary" the "*Stock-and-horn*" is described as a "musical instrument composed of the *stock*, which is the hind thigh bone of a sheep, or a piece of elder, with stops in the middle, the *horn*, the smaller end of a cow's horn, and an oaten reed."

In the splendid volume on "Musical Instruments," by Hipkins and Gibb, it is said that the Lowland Scotch shepherd's pipe is made of horn, the cover for the reed being also of horn.

Engel² writes, "The *stockhorn*, which the pastoral people in Scotland formerly constructed, is similar to the Welsh *pibgorn*. In the 'Complaynt of Scotland,' which was written in the year 1548, we find the *cornepipe* enumerated among the pastoral instruments played by eight shepherds: 'The fyrst had ane drone bagpipe, the nyxt hed ane pipe maid of ane bleddir and of ane reid, the third playit on ane trump, the feyerd on ane corne pipe, the fyfth playt on ane pipe made of ane gait horne, the sext playt on ane recorder, the sevint plait on ane fiddil, and the last plait on ane quhissel.'"

Again (on page 373), Engel mentions a specimen of the

¹ *Op. cit.*

² "Musical Instruments in South Kensington Museum," p. 293.

Stockhorn lent by Mr. J. Gordon Smith, and quotes the following passage from Allan Ramsey in "The Gentle Shepherd," published in the year 1725 —

"When I begin to tune my stock and horn,
Wi' a' her face she shaws a cauldrie scorn . . .
. . . . Flocks, wander where ye like, I dinna care,
I'll break my reed, and never whistle mair!"

The various forms mentioned appear to be the principal varieties of the "hornpipe," which have lasted on in the face of competition from superior instruments, practically till the present time. The instruments of this class are closely allied to the bagpipes, as is especially evidenced in the more primitive varieties of the latter instrument, such as may still be met with in the East and also in the more remote regions of Europe. In dealing therefore with the pibcorn class frequent mention must necessarily be made of the bagpipes.

It seems very probable that the use of a large mouth-piece, or "wind-chamber" so to speak, covering the reeds and protecting them from injury, indicated the transition from pipes with uncovered reeds to those which are sounded through, and partly by means of a flexible bag, the skin being substituted for the gourd or horn when a continuous blast was deemed advantageous. A continuous blast can with practice be given, in performing upon some instruments, by inhaling with the nostrils and blowing with the mouth into the instrument simultaneously, after the manner of using the chemist's blow-pipe.

The Bhotanese are described by Turner¹ as being able to sustain prolonged blasts upon the hautboy in this manner; so, too, the Brahmins of India in performing upon their buccinum shells in their religious ceremonies; but this laborious method has been generally rendered unnecessary by the use of the skin air-reservoir of the bagpipes. The gourd or horn mouth-piece covering the reeds may have been originally adopted primarily as a *protection* to the delicate reeds, as we use a cap for covering the vibrating reed of the clarinets, and a secondary use may have been found in perforating the cover, so that this could be used as a mouth-piece, and the reed sounded without being taken between the lips.

The use of a gourd as a combined mouth-piece and reed-protector is very common in Southern Asia and Eastern Europe, and in some districts the same instrument may be met with in two forms, differing only in being furnished in the one case with a gourd mouth-piece, and in the other case with a flexible

¹ "Embassy to Tibet," 1733, p. 127.

skin bag, the remainder being exactly similar, as will be seen from some of the following descriptions:—

If we look to the East the number of reed instruments on the primitive oboe and clarinet types is very considerable, and it is unlikely that instruments whose chief parts are derived from reeds (*calamus*) should have been invented in any country other than one in which these materials occur in abundance; and I will now pass on and describe some Eastern forms which if not identical with our British pibcorn, at least resemble it in such detail as to leave little doubt of the derivation of this instrument from the East. I have already mentioned the Arab reed pipes, *arghool* and *zummarah*¹ (the latter being figured at Fig. 10, Pl. III), as being examples of extremely primitive clarinet forms roughly made from reeds, with small inserted reed mouth-pieces, each slit to a vibrating tongue. In some, the tongue is formed by a slit from below upwards; in others, from above downwards, so that the free end of the tongue points towards the player, as is the case in the pibcorn mentioned by Daines Barrington (*v.* Fig. 9). Occasionally a *tin* bell-mouth is added to these instruments, when a single pipe is used, instead of the double pipes, though the *horn* bell-mouth appears to occur now-a-days only in the bagpipes form mentioned below. A gourd mouth-piece moreover does not seem to be used with these Arab pipes. These appear to be survivals from an earlier stage than that of which the pibcorn is a representative.

Turning to the Greek Archipelago we find there an instrument which in appearance and character is almost the counterpart of the Welsh pibcorn. Amongst several very interesting specimens from the Grecian Archipelago, recently presented to the museum at Oxford by J. Theodore Bent, Esq., were two musical instruments which seem to throw great light upon the true origin of the pibcorn, and the arrival, in fact, of these specimens, led me to write this paper.

The first of these (Figs. 1–4, Pl. II) consists essentially of a chanter composed of two reed pipes of equal length, each furnished with five finger holes, the two pipes being tuned approximately to unison. These are fixed in a channel formed of the half of a section of larger reed split longitudinally. The upper ends of the pipes are fixed into a solid cap perforated with two holes corresponding with the cavities of the pipes. Into these holes above are fitted the two sounding reeds, protected by a short channel of large reed, which faces the opposite way to the channel in which lie the two pipes (Fig. 3).

The two sounding reeds are slit from below upwards to form

¹ Lane's "Modern Egyptians," 1860, p. 367.

vibrating tongues on the simplest "clarinet" principle (Fig. 4), each having a fine thread tied round it in order to restrict the play of the tongue. Over the upper part of the instrument and concealing the sounding reeds, is fitted a small gourd, which is perforated at the top to admit air, and so serve as a mouth-piece (Figs. 1 and 2), forming an air chamber of moderate size. At the opposite end of the chanter is fitted a bell-mouth, made from the small end of a cow's horn, the outer edge of which is serrated. This instrument was obtained in the island of Tenos. Its resemblance to the pibcorn is very striking, especially to the variety described by Daines Barrington (Fig. 7), which I consider the early form of this instrument. In both these the chanter is of reed; the sounding reed is of the simplest kind, and on the clarinet or single reed principle, protected by an air chamber; the bell-mouth is identical in the two forms, made of cow's horn with the outer edge serrated. The chief differences are: the single pipe of the pibcorn and the double pipes of the other; the different number of finger holes; the substitution in the pibcorn of the horn mouth-piece instead of the gourd. In Mr. Wynne Finch's pibcorn¹ further differences occur in the "oboe" reed and the chanter made of horn, differences which were no doubt adopted as improvements upon the older form.

These differences, however, do not amount to much, as they are rather what one would expect to find, as resulting from the migration northwards. The use of *double* pipes, as in the Tenos form, implies the pre-existence of a *single* piped form, of which, no doubt, the pibcorn is a survival, just as we find the single piped form (Fig. 11) of Arab reed pipes existing in Egypt side by side with the double pipes (Fig. 10, Pl. III).

The substitution of horn for gourd in a country where gourds are uncommon is but natural, the substitute most readily suggesting itself being the re-duplication of the bell-mouth of horn at the opposite end of the instrument. The serrated edge of the horn bell-mouth is the less likely to have been independently invented in the two regions from the fact of its not, apparently, serving any *useful* purpose. This, too, may perhaps be said of the bell-mouth itself, which, from the rough manner in which it is fitted, can have but very slight effect in increasing the power of the instrument.

The second specimen from the Greek Archipelago, which bears upon the subject of this paper, is figured at Fig. 5. This specimen illustrates how the Greek "hornpipe" is converted into a "bagpipes" by the mere substitution of the skin of a kid for the gourd mouth-piece. The vibrating reeds are concealed

¹ Engel, "Musical Instruments in the South Kensington Museum," p. 293.

by this skin bag, which is inflated through a small wooden mouth-piece. There are two reed pipes as in the last specimen, but while one has the usual five finger holes, the other, the drone, is perforated by but a single hole. The horn bell-mouth with serrated edge is similar to the other specimen. The tongues of the sounding reeds are slit from above downwards, as in the Barrington pibcorn.

This form of bagpipes is closely allied to the Arabian *zouggharah*,¹ which is, so to speak, the bagpipe version of the common Arab reed pipes, *zummarah*, mentioned above. This consists of two reed pipes² tuned to unison, each with four finger holes; *each* pipe terminates in a curved bell-mouth of horn.³ The reeds are sounded through a goat-skin bag or reservoir, with a simple wood mouth-piece.

Further Eastwards, in Persia, is a kind of bagpipes, *nei ambanah*,⁴ which bears a close resemblance to the form just described from the Greek Archipelago. In this there are two reed pipes lying parallel in a split bamboo, each having six finger holes, and a reservoir of sheepskin inflated through a wooden mouth-piece. The vibrating reeds are protected by a projecting semi-cylindrical piece of bamboo, facing backwards, exactly as in the Greek Island specimens. The chanter has no bell-mouth of horn in the specimen described and figured by Ouseley,⁵ and this constitutes the only important difference between this and the Greek and Arab forms.

In India the variety of instruments belonging to this simple class is very great. The *toomeri* or *tubri*, and the *poongi* or *pugi*, are primitive forms and probably very ancient ones. Both are especially used by the Sampuris or snake-charmers of Hindustan. The *magoodi* and *papanasem* are other slight varieties, but the proper nomenclature of these instruments is somewhat uncertain at present. The *poongi* has the ancient name of *Nasa-jantra*,⁶ and appears to have been blown in ancient times by the nostrils. It—in its modern form—consists of single or double reed tubes, with eight finger holes; the vibrating reeds are of the usual type, and sounded through a covering mouth-piece made, in one variety, of a dried pumpkin (*Curcubita lagenaria*),

¹ Stainer, "Music of the Bible," p. 119.

² Metal pipes are sometimes substituted.

³ From this it would seem that the horn bell-mouth was applied to the *single* pipe originally, and that the pibcorn therefore is probably the representative of the earlier stage before the *double* "hornpipes," such as the Greek specimen.

⁴ Ouseley "Travels in the East," vol. i, Pl. XXIII, Figs. 9, 10, 11, and p. 242. *Nei* = reed, pipe, etc., and *ambanah* = bag made of an entire sheepskin. Also called *nei meshek* or *nei kheig*.

⁵ *Op. cit.*, i, Pl. XXIII.

Tagore, "Short Notices of Hindu Musical Instruments," Calcutta, 1877.

and in another of leather,¹ thus illustrating well the transition to the bagpipes.

The *toomeri*, said to be more common in the Deckan than in Bengal, is very similar to the above. The number of finger holes varies, there being sometimes the same number on both pipes or several (usually seven) on the chanting pipe, and only three or four on the drone. An instrument of this class is shown at Fig. 12, having two reed pipes, each with four finger holes, and fitted to a gourd wind-chamber with wax fixing. The sounding reeds resemble those of the Greek bagpipes, Arab pipes, &c., and the pipes with their reeds, when the gourd is removed (Fig. 13), bear a striking resemblance to the zummarah of Egypt (Fig. 10), the latter, however, being bound together with twine, while wax is employed for this purpose in the Hindoo instrument.

Another Hindoo instrument is figured at Fig. 14 (Pl. III). Here, again, we have the two pipes, fitted with wax into a very large gourd reservoir, having a peculiar forward spur continued beyond the mouth-piece. The pipes are short and thick (Fig. 15), the chanter having five finger holes, the drone only three. The sounding reeds are precisely as in the last specimen. The resemblance to the Greek "hornpipe" (Figs. 1, 2, Pl. II) in this specimen is greatly increased by the presence of a curved bell-mouth of cow's horn, the method of fixing being precisely the same in the two specimens.

In most of these Hindoo double pipes one pipe is used as a drone, and usually some of the holes in this are temporarily stopped with wax, as may be seen in Fig. 15, according to the drone note required, occasioning a momentary pause in the tune. In the Arab *arghool* the alteration in the drone note is effected by having this pipe composed of a number of detachable joints. Probably in most primitive double pipes, particularly those in which the chanter has more than four finger holes, some such method as that of the Hindoos of stopping the holes of the drone, is used, as both hands must be used in order to cover more than four holes upon the chanter. Bagpipes of the primitive form are to be met with in India, as for example the *tourti* or *tourri*.²

It is unnecessary to multiply instances and describe the numerous other varieties belonging to this class; the types I have mentioned are sufficient for my purpose. The object of this paper has been to prove the improbability of the Pibcorn being a strictly indigenous instrument in Great Britain, and the great probability of its having, like so many instruments which

¹ Herklot, "Customs of the Mussulmans."

² Stainer, "Music of the Bible," p. 120.

have been brought to perfection in Western Europe, been derived from the East, where we may see varieties of this simple instrument still surviving and in common use.

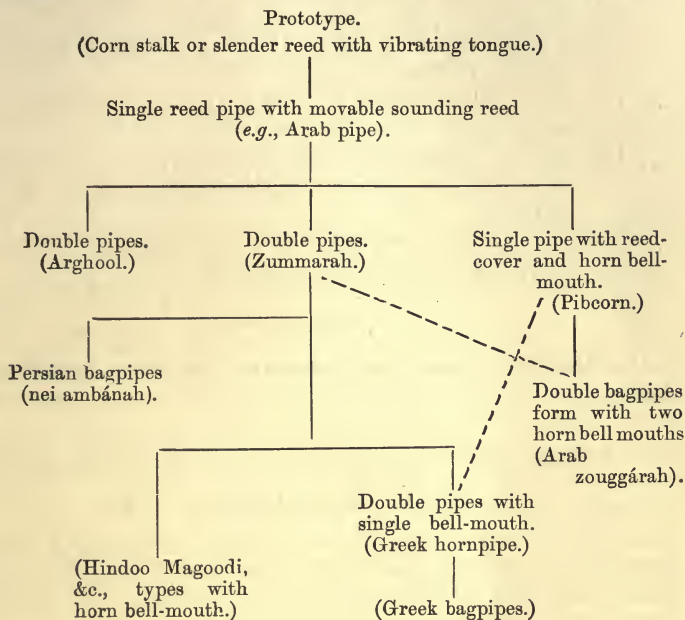
I will very briefly recall the main points of my paper. The Pibcorn and other closely allied British instruments, belong to a large family of reed pipes, whose natural and original home is in the East, and whose sounding reeds are of the simplest kind, and, at least in the early forms, on the "clarinet" principle.

Very early stages in the development of this class still survive, as, *e.g.*, the Arab, single and double pipes of the *zummárah* and *arghool* type, the single form being necessarily the earlier of the two kinds. As a protection to the delicate reeds a cap or cover was added, and by perforating this a secondary use was found for it as a mouth-piece, through which the reeds could be sounded. The curved horn bell-mouth, though not universal, occurs certainly in India, Arabia, and the Greek Archipelago; and in the latter locality the outer edge of the horn is serrated, a character which persists in the Pibcorn.

This horn bell-mouth was added first to the single reed pipe, and the Pibcorn is a representative of this stage, while the Arab *zougghárah* represents the early combination of two pipes of this character, each retaining its bell-mouth, whereas the Greek and Hindoo "hornpipes" illustrate the later stage with a single bell-mouth for both pipes. The bagpipes are closely related to the "hornpipes," the gourd mouth-piece having been replaced by a skin bag, for sustained blasts; they likewise originated in the East, and were derived from the double reed pipes with simple clarinet reeds, the substitution of oboe reeds in the higher forms¹ being a modern improvement, paralleled by the Pibcorn described and figured by Engel. Both hornpipes and bagpipes had formerly a far more general distribution in Europe, the result of a gradual migration westwards, but were gradually ousted by the rapid improvement in musical instruments in Western Europe, surviving only in the more remote regions, among pastoral people, as, for example, in Brittany the *Pibcorn* (?) and Bignou or *Cornemuse* (bagpipes, lit., horn-pipe), in Wales the *Pibcorn* and *Pibau* (bagpipes); in Scotland the *Stock-horn* and Scotch bagpipes. It would seem as though these instruments had been brought to the British Islands with the Celtic immigration, and that they have survived particularly in those regions in which the Celtic blood has held its own. The bagpipes have tended generally to survive the horn pipes as offering special advantages in the sustained blast.

¹ The *drones* of the Highland bagpipes retain the primitive "clarinet" reed, though now-a-days the chanter usually has an "oboe" reed.

A rough scheme may help to illustrate the affinities of this group of instruments, as they are suggested by a study of the survivals—



Explanation of Plates II and III.

PLATE II.

- Fig. 1. Double "hornpipe" from the Grecian Archipelago, obtained by J. Theodore Bent, Esq., at Dio Maria Village, Tenos.
- " 2. Side view of same.
- " 3. Upper portion of same with gourd mouth-piece removed shewing position of sounding reeds.
- " 4. One of the sounding reeds removed.
- " 5. Bagpipes, from the Grecian Archipelago, obtained by J. Theodore Bent, Esq.
- " 6. One of the sounding reeds removed.
- " 7. Pibcorn from the Island of Angelsea, described and figured by the Hon. Daines Barrington (copied from the "Archeologia" for 1779).
- " 8. Back view of the pipe, with end pieces removed, showing reed *in situ*.
- " 9. Sounding reed of same.

PLATE III.

- Fig. 10. Double reed pipes, Zummárah, Arab, from Egypt.
 „ 11. Single reed pipe, Arab, from Egypt.
 „ 12. Double pipes, Toomeri, Deckan, India; Museum of Indian Institute, Oxford.
 „ 13. Same, with gourd removed showing sounding reeds *in situ*.
 „ 14. Hindoo “hornpipe,” with double pipes, and large gourd reservoir, side view; Museum of Indian Institute, Oxford.
 „ 15. Same with gourd and horn bell-mouth removed, front view, showing sounding reeds *in situ*.

DR. MACNEILL read the following Paper on behalf of the Author:—

The ANCIENT PEOPLES of IRELAND and SCOTLAND considered
 By HECTOR MACLEAN, Esq., M.A.I.

ASSIDUOUS research has now, at least, ascertained that, in early times, such migrations of tribes took place that autochthones are hardly to be found in any country, and that such were not found even many thousands of years ago. Most peoples, however backward, retain a legendary history of their forefathers corresponding to the state of their culture and beliefs, of their wild fancies and unbounded credulity. It is well when such traditions can be recorded, and can be had from original sources, as is the case with “The Ancient History of the Maori,” by Mr. John White, who says:—“The histories of other peoples are based upon monuments, inscriptions on wood and stone, or upon other records. The Maori had not reached this state of advancement, and, though he valued knowledge in the highest degree, it was entirely preserved in memory and transmitted orally.

“He had for ages held tenaciously to the mode of life imposed upon him by the laws and customs of his mythology, and he held his sacred knowledge in such awe that to divulge it to those not of his own race, or even to the junior branches of his own people, was to incur the penalty of death. So thoroughly was he imbued with the principles of his early teaching that even after he had been taught and had adopted the tenets of the Christian faith, his priests would not dare to disclose some of their secrets.”

Evidently, during a long period of the early and infant progress of tribes and confederacies of tribes, their history, garnished by fancy and imagination, is transmitted by oral tradition; and as tribes and peoples intermix, amalgamate, or conquer one another, so do also their dialects, traditions, and superstitions blend. Undoubtedly, in the far-off, dim past, the more cultured nations exerted, by intercourse, a civilising influence on those which were more backward. Egypt and the Western Asiatic nations promoted the advancement of Greece and Italy, while Greece and Italy introduced their culture to peoples further west.

As regards the British Isles, we derive some information from Greek and Roman writers, and as the Romans effected the conquest of Britain and its colonisation, more especially Britain south of the firths of Forth and Clyde, our knowledge consequently of Britain to the south of these firths, during Roman occupation, is more circumstantial than of North Britain; and as for Ireland, it never came under their sway, so that we know even less of it from them directly than of North Britain. Had the legendary history of Ireland been written by the first Christian missionaries who had settled there, then we might have had a record such as White's "Ancient History of the Maori"; but, nevertheless, we can still, by study and research, acquire good notions of it from ecclesiastical and bardic records in which it is intermixed and confused with Biblical and classical lore.

Although the first peopling of Britain would take place across the narrowest passage by sea between it and the Continent, yet as mankind had multiplied and improved in navigation, Ireland and South-west Britain were sure to be invaded from the south-west of Europe, from the west of Spain and France, and no doubt successive Iberian colonies took and retained possession of Ireland, before the Kelts made their appearance in the island. Before Christianity had been introduced, as in the case of New Zealand, the story of its wars, invasions, and colonisations would be handed down orally, and perhaps otherwise, by bards and druids through many succeeding generations. Whatever the primitive legends of the heathen Irish were, Irish ecclesiastics, versed in Greek, Latin, and Biblical learning, attempted to explain them by the history given in the works of Greek and Roman authors and in the Bible. The careful and persevering student, by comparison of old Irish legendary history with the wonderful discoveries made, in recent years, in Egypt, Palestine, Assyria, and Babylonia, may arrive at considerably probable results with respect to old Irish legendary history. *Eriu* is the oldest form by which the name *Eirinn*,

the name by which the island is known at present to the Gaelic speakers of Ireland and Scotland, is found in old Gaelic or Irish records. It is clearly a contraction or wearing away of the name Hibernia, though somewhat less so than York from Eboracum. The Welsh name is Iwerddon, which is a little closer to the original name.

Mr. Hyde Clarke, at p. 8 of his "Iberian and Belgian Influence in Britain," in referring to the names of islands, states:—"The meaning of the words can very well be made out; it refers to the roundness or circular form, or self-contained round or enclosure, which marks an island. This is the reason for which names of allied meaning are represented on the coins, as sun, moon, vase, or pot, which are round, as was the ship in its primitive shape. The fish was regarded as round, and other animals found on island coins are the crab and tortoise. Island is the same idea or root as mountain, and hence the names for islands and for mountains are the same. As rivers flow from mountains, so are they of the same nomenclature differentiated. Thus my first suggestion of the names of Britannia and Hibernia was so far accurate; but island is not derived from river, but from mountain, and river from mountain.'

Then follows a list of compared names at p. 9, in which the name *Britannia* is compared with the river name Bradanus, and *Hibernia* with the mountain name Hebron and the river name Hebrus.

The genitive of *Erin* is *Érenn* and the dative *Érinn*. In Middle Irish *Erin* passed into *Éire* and the genitive into *Éireann*.

At pp. 5, 7, of Kelly's edition of Dr. Lynch's "Cambrensis Eversus," it is related of Laeghaire, son of Niall, that "He defeated the Lagenians and received the Boromean tribute; but they rose against him, once more, and having gained a victory, compelled him to swear by the moon and the winds, that he would never more demand that odious tribute. In violation of his oath he marched against them, but was killed by lightning near Caissi, in *Ui Faelain*, between the two mountains, *Éire* and *Alba*, according to the ambiguous prophecy that he would be slain between *Eire* and *Alba*, the Irish names of Ireland and Scotland, A.D. 458."

It appears, therefore, from this statement, that in the fifth century two mountains in Ireland were named *Éire* and *Alba*, and this fact confirms Mr. Hyde Clarke's theory.

It is highly probable that the name Hibernia, besides being applied to the whole island, was also applied to several districts of it as signifying mountain land, or country, and that several

districts in Scotland were also so named. In Ireland there is Loch Erne and Ireland's Eye; in Gaelic *Loch Eirne* and *Inis Eireann*. Richard of Cirencester relates that "The Lucani were situated where the river Ibernus flows into the ocean," and he mentions the Ibernii who lived in the south.

In Scotland is Auldearn (*Allt-eireann*, Rivulet of Eireann), a parish containing a village of its own name in the county of Nairn; the river Findhorn is called, in Gaelic, *Abhainn Eirne*, the river Eirne, a river of the counties of Inverness, Nairn, and Murray, which rises in the *Monadhleadh* hills between Strathdearn and Stratherrick. There are *Strathearn*, *Loch Earn*, and the river *Éarn* in Perthshire.

Banbha is also another old name for Ireland, which has too its counterpart in Scotland, in Banff, the name of a town and county in the north-east of Scotland, and still called, in the modern Gaelic of Scotland, *Bainbh*. The old form of the name of the town of Banff is "bánb," so written in a grant made to the monastery of Deir by King David I, of Scotland, and recorded in the Book of Deir. This name would seem to be totemical; for it is, very nearly in form, the same as "*Banbh*, a pig," and the corresponding cognate word in Welsh is "*Banw*." Both *Éire* and *Banbha* were, according to the Irish legend, queens of the tribes of *Dé Danann*, and *Éire* appears to have been a frequent woman's name in Ireland in olden times. Dr. Joyce states in his "Irish Names of Places," that "there are, for instance, two places in Antrim called Carneary, in each of which a woman named Éire must have been buried, for the Four Masters write the name *Carn-Ereann*, Eire's monumental mound." (Joyce's "Irish Names of Places," First Series, p. 109.)

Keating tells us, in his "History of Ireland," that the third name in the order of time was *Inis-Ealga*, which he explains as meaning "Noble Island." O'Reilly's Dictionary gives "Ealg, the face; an old name for Ireland; noble, excellent;" McL. and Dewar's "Gaelic Dictionary" gives "*Eilgheadh*, levelling a field for sowing; fallow-ground; a first ploughing of land that requires a second to prepare it for seed." The meaning, "noble," assigned both by O'Reilly and Keating, seems to be fanciful, and I should be inclined to explain the word by the Basque "*Elge, champ, plaine cultivée*;" that is, a cultivated field or plain, and the Albanic Gaelic word *Eilgheadh*, field cultivation. Consonant with this view, *Inis Ealga* would signify island of cultivated fields or plains, which contrasts with its oldest recorded name, "Island of the woods." *Inis Ealga* has its counterpart in Glenelg in the county of Inverness in Scotland. In Gaelic the name is *Gleann-Eilg*, that is, Glen of *Éalga*. Glenelg gives name to a parish on the west coast of

Inverness-shire. The coast, except in the bay of Glenelg, and within the sea-lochs, is generally high and rocky. The village of Glenelg is situated in level and arable ground at the bottom of one of the valleys in the parish called Glenmore. The name, *Fodhla*, would seem to correspond with that of the ancient Irish people *Vodiae* mentioned by Ptolemy. *Muicinis* (Pig's Island) would appear to be a translation of *Banbha*, made by the Kelts when they first settled in the island. *Inis Fáil* is another name very frequently occurring in old Gaelic tales and poems.

Fál denotes "king," and *Fáil* is the genitive. *Inis-fáil* therefore signifies King's Island. The stone on which the kings of Ireland were crowned has a strange fictitious history which has been transferred to the stone on which the ancient kings of Scotland were crowned. Scotch historians maintained that the stone carried away by Edward I, which was the coronation stone of Scotland, was the *Lia Fáil*. Irish historians deny this, and maintain that the stone is still in Ireland. Dr. Skene, who has examined the Scotch coronation stone, comes to the conclusion that it is a piece of Scotch old red sandstone. So it cannot have come from Ireland; but the word *Lia Fáil* means King's Stone, and would apply to any stone which was used as a seat for a king when being crowned. *Muicinis*, Pig's Island, is said to have been a name given to the island by the Children of Milidh, that is, by the first Kelts who arrived in it. When they came, according to Irish legendary history, to the mouth of *Inbher Slainé*, which is called the harbour of Loch Garman now, the tribes of *De Danann*, with their druids, assembled to meet them there, and they practised druidism, that is, sorcery on them, so that the island appeared to them in the form of a pig, so that, consequently, they named Ireland, *Muicinis*, that is, Pig's Island. From this legendary explanation, it may be inferred that a pig was the Dedannian totem or mythological name for Ireland; that *banbh*, a pig, is a pre-Keltic word, and that from it is derived *Banbha*, one of the Dedannian names for Ireland. Again it may be reasonably assumed that *Muicinis*, Pig's Island, is a Keltic translation of *Banbha*, which has the same signification.

Old Irish legend tells us that Eire, *Fodhla*, and *Banbha* were three Dedannian queens, who respectively gave their names to the island. *Inis Fáil*, King's Island, was also a name given to it by the Dedannians.

The name *Inis-Ealga* was given to Ireland by the Firbolgs, and has already been explained. Although *Ealga* seems to me to be cognate with the Basque Elge, I am not to be supposed as implying that the Gaelic word is derived from the Basque word,

but that both have their root in an older Turanian dialect than any of the Basque dialects. It would appear somewhat probable that the following Gaelic words compared with Basque words have a pre-Aryan origin, and that both they and the Basque words compared with them are to be traced to Turanian dialects belonging to very ancient times which Mr. Hyde Clarke calls the Iberian Epoch:—Gaelic, *Adharc*, a horn, Basque, *Adar*: G., *Arrach*, likeness, spectre; B., *Aran*, appearance; G., *Aithre*, a beast of the cow kind; B., *Arthalde*, a flock; *Eirich*, rise; B., *Eraik*, raise; G., *Earba*, a roe; B., *Erbi*, a hare; G., *Airne*, kidneys; B., *Erran*, kidney; G., *Eas*, an inseparable negative prefix; B., *Ez*, no, not, also used as a prefix; G., *As*, milk; B., *Esne*, milk; G., *Ce*, night; B., *Gai*, night; G., *Call*, loss; B., *Gal*, to lose; G., *Garadh*, a warming or heating; B., *Gar*, flame; G., *Giblion*, entrails of a goose; B., *Gibel*, liver; *Gibelmin*, gall; G., *Corrach*, steep; B., *Gora*, high; G., *Carraig*, a rock; B., *Harroca*, a stone or rock; G., *Cil*, death; B., *Hil*, death; G., *Ed* or *Eid*, cattle; B., *Idi*, an ox; G., *Iasad*, a loan; B., *Jesan*, to borrow; G., *Ceo*, mist, denotes smoke in the Gaelic of the Outer Hebrides; B., *Khe*, smoke; G., *Arr*, a stag or hind; B., *Oren*, a stag; G., *Airghir*, a cow calf; B., *Orax*, a male calf; G., *Sabhal*, a barn; B., *Sabai*, a barn; G., *Tamh*, rest, repose; B., *Thai*, stop, repose; G., *Airne*, a sloe; B., *Arhan*, a plum; G., *Arthrach*, a ship, wherry, or boat; B., *Arran*, an oar. Gaelic is here used not restrictively, as meaning the Scotch dialect of the language, but for this tongue in general, comprehending old and modern Irish, Scotch, Gaelic, and Manks, written and spoken.

It may be said that the oldest native Gaelic stories which treat of the first peopling of Ireland, are mingled with the Bible stories of Adam, Noah, and the flood, along with a sprinkling of ancient Greek and Roman legend. Now this is what was to be expected from the conversion of the natives to Christianity. The first peopling of the island is traced to Spain, which is called in old Gaelic *Easpáin*, a modification of the Latin Hispania, from which it comes. The Irish foreign geographical names are mostly borrowed from the Latin, as was to be expected, as it was the learned language of Christianity, and the language in which all Irish theological books and biographies of saints were written till modern times. At an early period of Irish Christianity, nevertheless, glosses to theological books and poems were written in the native tongue, and that old foreign geographical names should be superseded by Latin ones was to be expected, in fact, could not be otherwise. Still we trace in this legendary history something that is essentially native; and comparing the old written legends

with the simple tales and ballads collected among the Gaelic-speaking peasantry of Ireland and Scotland, we find frequently in some of the variants "*An Iar ma Dheas*" (the South-west) taking the place of *Easpain* (Spain), *Gréig* (Greece), *Africa* (Africa), and so forth. One tale respecting the first peopling of the island is that three fishermen were driven by a high wind from Spain, against their will, to Ireland; were pleased with the appearance of the island, and returned for their wives to Spain, and after having come back to Ireland, the flood was sent to them at Tuaigh Inbhir (the ancient name of the Bann at Coleraine), so that they were drowned. Their names were Capa, Laighne, and Luasad. Another tale recounts that Ceasair, the daughter of Bioth, the son of Noe, came into it before the flood. Bioth, Fionntain, and Ladhra, with their wives Ceasair, Barrann, and Balbha made a ship, took fifty maidens with them, and went to sea. At the end of seven years and a quarter on sea they took harbour at Dun nam-barc, in the district of Corca Dhuibhne (probably Dunnamark near Bantry). *Ard-Ladhrann*, in the county of Wexford, is so called from Ladhra; *Sliabh Beatha* (now Slieve Beagh, near the town of Monaghan) from Bioth; *Feart Fionntain* (Fionntan's grave), over Tultuinne, a hill rising over Loch Derg, from Fionntan; Carn Ceasrach, in Connaught, from Ceasair. All these speak of Ireland being peopled from the west by persons who arrived by sea from the south-west. *Fionntan* is a frequent old Irishman's name, but *Ceasair* and *Ladhra* would seem not to be explicable by Gaelic; *Bioth* signifies World, *Barrann*, a contraction of *Barr-fhionn*, Fair-hair, and *Balbha*, dumb or silent woman. *Capa-Laighne* and *Luasad* would also seem to be inexplicable by aid of Gaelic.

Several conquests of Ireland are related by legendary chroniclers and bards. The first is that of Partholón. Partholón is said to have been the son of Sera, the son of Sru, the son of Esru, the son of Fraimint, the son of Fathachta, the son of Magog, the son of Jafeth, and came to take it after it had been a desert three hundred years after the flood. Partholón is said to have set out from Middle Greece, that he went through the Torrian Sea to Sicily, and with the right hand to Spain till he reached Ireland. In two months and a half he took harbour in Inbhior Sgéine in the western part of Munster. Dealgnaid was the name of his wife; the names of his three sons were Rughruidhe, Slainge, and Laighlinne. Partholón dwelt first at Inis Saimher, near to the river Erne. The seventh year after Partholón had taken Ireland the first man of his people died; that was *Feadha* (wood man), son of *Tortan* (little cake), and *Magh Feadha* (plain of wood) is so named from him.

The route of this people from Greece to the west of Ireland fully corresponds with old Iberian movements. How far the story is wholly or partially fiction is entirely another question. Some of the chroniclers speak of another conquest of Ireland before Partholón; that is, the conquest of Ciocal (pronounce Keekal), the son of Nel, the son of Garbh, the son of Uthmhoir, from Sliabh Ughmhoir, and Lot Luaimhneach was his mother. They lived two hundred years by fishing and fowling till they met with Partholón in Ireland, and the battle of *Magh Iotha* (plain of corn) was fought between them, in which Ciocal fell, and in which the Fomorians were destroyed by Partholón. It is related that Ciocal and his people took harbour in Inbhior Domhnann, now the Bay of Malahide, in the county of Dublin.

We are told that the second conquest of Ireland was effected by Neimhidh and his sons. His descent, like that of Partholón, is traced to Magog, and "all the colonists who took Ireland after the flood descend from the children of Magog." The Irish bardic historians inform us that Neimhidh journeyed, when he was coming into Ireland from Scythia, on the narrow sea which is coming from the ocean that is called Mare Euxinum; that he gave his right hand to the Riffean mountains till he came into the northern ocean, and his left hand to Europe till he came to Ireland. The name of Neimhidh's wife was Macha, and Ard Macha (Armagh) is said to have been so named from her. Macha is one of several names for the Royston crow, which was the emblem of the Irish goddess of war, and several other renowned ancient Irishwomen were so called. All the other ancient recorded conquests of Ireland were made from the south-west, but Neimhidh and his tribe come from Asia by the north of Europe to the island. Neimhidh, the genitive of which is Neimhiodh. The Nemetatae were, according to Ptolemy, a people of Hispania Tarraconensis, and Nemetobriga was a city of the same part of Hispania, according to the same authority. Nemetacum was a town of Gaul, and the Nemetes were a people of Germany at the west of the Rhine. The Vangiones, Tribocci, and Nemetes, Tacitus tells us, were of German origin, and he says that the Treveri and Nervii resembled the Gauls in person and weakness, but the Gauls of Tacitus form a strong contrast to those of Livy.

It is certainly very probable that the Nemetatae of Spain, the Nemetes of Germany, and the Irish children of Neimhidh belong to a common original stock. In Dr. O'Donovan's supplement to O'Reilly's "Irish Dictionary," *Neimheadh* is a poet, "a lawful person," "a chief, a noble," "a king or bishop," "a musician, carpenter, or smith." There is considerable probability that the original meaning of the word was *man*.

There is the word *neimheadh*, a cow, which seems to have no relation to the other word than that of a homonym. It is evidently like many other words found in Gaelic—of pre-Aryan origin. Cow, in the Chinese of Nankin and Pekin, is *Niū*, and in that of Shanghai is *Nieu*. In *Gyámi* it is *Neu*, *nyeu*; in *Gyārun* *Nye-nye*; in Burman (written) *Nwā*, (spoken) *Nua*, *nwau*; languages on the frontier of China and Thibet. ("The Non-Aryan Languages of India and High Asia," W. W. Hunter, p. 113.) Like the tribe of *Partholón* before them, the children of *Neimhidh*, we are told, had fierce wars with the *Fomorians*, a name in the original signifying sea-farers, whom the old Irish chroniclers designate "sea rovers of the race of *Cam* who fared from Africa." The children of *Neimhidh* won many battles first, but ultimately the *Fomorians* were victorious and exacted heavy tribute from the children of *Neimhidh*.

The *Firbolgs* were the next people who seized and colonised Ireland after the children of *Neimhidh*. Their five chiefs, *Slainghe*, *Gann*, *Seanghann*, *Geanann*, and *Rughraidhe*, who are traced in descent to *Neimhidh*, divided Ireland into five provinces, whereof they were respectively chiefs; and royal government began with them. They were, according to Irish bardic historians, descended from a portion of the children of *Neimhidh*, who fled from the oppression of the *Fomorians* to Greece.

The Greeks subjected them to great tyranny, forced them to dig the ground, raise the earth, and carry it in bags of leather to put it on the rocky surface in order to produce a fertile soil there. They resolved to escape from this oppression, and, according to an ancient Irish manuscript, stole the fleet of the king of Greece, and came back in it to Ireland. They crossed the sea, the old bards inform us, reached Spain, and thence arrived in Ireland.

Irish historical writers have endeavoured to identify the *Fir-bolgs* with the *Belgæ*; but at p. 276 of his "Celtic Britain," Professor Rhys says of the *Belgæ*:—"Neither the people nor its name had anything whatever to do with the Irish *Fir-bolg*"; nevertheless, the learned professor assigns no reason for this strong assertion. The legend of the "bags of leather" is based on the assumption that *bolg*, in *Fir-bholg*, is identical in meaning with the Gaelic *bolg*, a bag; and on this supposition the legend of carrying the bags full of earth by the *Firbolgs* in Greece, is founded. *Fear*, in *fear-bolg*, is a Gaelic gloss on *bolg*, which denotes *man*, and is explained by the prefixed *fear*, which signifies *man* or *fir* in *Fir-bholg*, which signifies *men*; as may be illustrated by numerous words wherein one language has encroached upon another, as in the case of Norse and Gaelic;

thus, *Eas-fors* is the name of a waterfall in the island of Islay, and of another in the island of Mull—two islands in the Hebrides. The first part of this name, *Eas*, means a waterfall in Gaelic, and the second, *fors*, the same in Norse; and so it is with Firbolg. So *bolg* meant man or men in the language spoken by the Firbolgs, and was not understood correctly by the Keltic conquerors. At p. 8 of Mr. Hyde Clarke's "Notes on the Ligurians, Aquitanians, and Belgians," he says:—"The general name of Belgian, like that of Ligurian, is recognisable. It is man as in other cases." And further on, in the same page, he states:—"The Belgians in no general respect differed from the inhabitants of pre-Keltic Gaul. The distinction drawn by Cæsar is consequent on the occupation of midland Gaul by the Aryan invaders, thus sundering the northern Iberians or Belgians from the southern Iberians or Aquitanians, as also from the Ligurians."

"We find, also, that the district was settled with Iberian cities, and that this occupation extended to these shores of the North Sea, if not further, and even to the amber deposits." That the Firbolgs were the same people as the Belgæ, before the latter had been intermingled with the Kelts, there would seem to be hardly any doubt.

The Firbolgs consisted, in fact, of three septs—the Fir-bolgs the Fir-Domhnanns, and the Gaileons. Domhnann is the genitive of a Gaelic name of which the nominative was probably *Domhan*, and cognate with *Damnii*. At p. 12 of his "The Iberian and Belgian Influence and Epochs in Britain," he enumerates the *Damnii* in Britain and Hibernia as tribes whose name was derived from a prehistoric name for man. The name of this sept of the Firbolgs is preserved in the old Irish names, *Inbhior Domhnann* (river-mouth of *Damnii*), now the Bay of Malahide, in the county of Dublin, and *Iorris Domhnann*, equivalent to *Iar ros Domhnann* (west promontory of the *Damnii*), now the barony of Erris, county Mayo. There are Gaelic words which appear to be allied to this name, such as *damh*, a people, tribe, or family; *daimh*, relationship; *daimheach*, a relative, friend, or associate; *dáe*, a man.

The *Damnonii* or *Damnii* of North Britain, according to Dr. Skene in his "Celtic Scotland," extended from the Selgovæ and Novantæ, south of them as far north as the River Tay, south of the firths of Forth and Clyde; they possessed the modern counties of Ayr, Lanark, and Renfrew, and north of them the county of Dumbarton, and the western half of the peninsula of Fife. The Irish *Damnii* were, in all likelihood, an offshoot of these.

When the Romans built the wall between the firths of Forth

and Clyde, it passed through the territories of the Damnonii and divided them into two parts, one of which within the wall was subjected to the Roman Government, and the other was beyond Roman Britain. The historian speaks of the tribes without the wall as grouped into two nations—the Caledonii and the Mæataë. The Caledonii included the northern tribes of which the Caledonii were the leading tribe, and the Mæataë those extending from the Caledonii to the wall. Adamnan, in his life of St. Columba, mentions the Mæataë, whom he designates Miathi or Miati, with whom the Albanic Scots were at war, and who were defeated in battle by the latter in 596.

The name Mæataë, Miathi or Miati, very probably signifies, like numerous other pre-Aryan names of tribes, *men*. Mies denotes man in Finnish; in Tibetan, Mi; in Serpa and Múrmi, languages in Nepal, Mi, signifies *man*, as it does in Bhútani, in north-east Bengal, and in Mithán Nágá on the eastern frontier of Bengal. ("The Non-Aryan Languages of India and High Asia," by W. W. Hunter, p. 139.)

The fifth conquest of Ireland was that of the *Tuatha Dè Damann* or Dedannian tribes, who are said to have come from Achaia in Greece, where, being skilled in sorcery, they exercised it on enemies of Greece, who had come in a great fleet from Syria. The Syrian people consulted a druid of their own, by whose directions the druidism of the Dedannians was thwarted, and the result was that the Syrians were victorious over the Greeks. When the Dedannians observed that the people of Syria were prevailing over the Greeks, they departed through fear of them, out of Greece, and they did not stop until they reached Norway, or the country of the *Fair Lochlann-men*; where the people welcomed them for their great acquaintance with science and with numerous arts. He who was chief over them then was Nudaioha Airgwdlámh (Nuadha of the Silver-hand) of the race of Neimhidh. They obtained four cities for teaching the young people of Norway in them. After having been for a length of time there, they went to Alban (Scotland), and were for seven years at *Dobhor* and at *Iardobhor*, after which they came to Ireland. They landed in the north of Ireland, fought with the Firbolgs, and gained the battle of Moytura South over them, in which Nuadha of the Silver-hand lost his hand. Thirty years thereafter the battle of Moytura South was fought between the Dedannians and the Fomorians wherein Balar, the chief of the Fomorians fell and Nuadha of the Silver-hand lost his head.

The older form of the legends, as contained in Maelmurra's poem, does not mention Partholón's colony; names the Firbolgs as the first colonists, and identifies the children of Neimhidh

with the Tuatha Dea. Gillacaoman, in a poem quoted by Colgan, also identifies the children of Neimhidh with the Tuatha Dé Danann. As the Tuatha Dea and Tuatha Dé Danann are both identified with the Nemedians, it would seem that *Danann* stands for another people united to the Tuath Dea, and that this people was the Fir Domhnann, one of the septs of the Firbolgs. The Ravenna Geographer gives *Dannoni* for Ptolemy's Damnonii, which differs but little from *Danann*, in Tuatha De Danann. The Tuatha De Danann lived, bardic chroniclers tell us, seven years at *Dobhor* and *Iardobhor*, in the north of Alban, before they went to Ireland, from which it may be inferred that the Damnii of Ireland were a branch of the Damnonii or Dannoni of North Britain, and that they and the Nemedians became one people. *Dobhor* signifies water, and also a boundary. As the Damnonii had the River Tay to the north of them, and as their territory included the basins of the Forth and Clyde, *Dobhor* seems likely to have been the portion of their territory bordering on the Tay and *Iardobhor* (west water or boundary), that portion of it bordering on the rivers Forth and Clyde. The towns enumerated by Ptolemy in the territory of the Damnonii were six in number—three south of the firths—Colania, Coria, and Vandogara; and three to the north of them—Alauna, Lindum, and Victoria. They appear to have been in advance of the tribes north and south-west of them in culture, which gives foundation to the knowledge of arts and sciences ascribed by the old Irish bardic chroniclers to the Tuatha Dé Danann.

The names of three of the Irish provinces—Leinster, Ulster, and Connaught are in the original Gaelic, Laighin, Ulaidh, Connacht; which names are not territorial, but signify the people of these respective provinces. Laighin is a nominative plural, the genitive plural of which is Laighean, which may very probably be, as in the case of so many other Gaelic substantives, the nominative singular. In recording events relating to the Lagenians or people of Leinster, Irish writers use *Laighnibh*, the dative of place, otherwise the locative of Laighin for Leinster. This name bears considerable resemblance to Ligyes and Ligures; which names are given as signifying *man*, at p. 3 of Mr. Hyde Clarke's "Notes on the Ligurians, Aquitanians, and Belgians." Ulaidh is a plural substantive denoting a people, and like Laighin, is not territorial; the genitive plural is Uladh, which was probably also the nominative singular. "*In Ulster*" was written in the original Gaelic, *in Ultaibh*, that is, in Ultonians.

Connaught is, in the original Gaelic, *Connacht*, a modification of *Conn-iocht*, which denotes children or descendants of Conn;

but the old name of the province, as given by Ptolemy, was Nagnatai. This seems to be a name given to a pre-Keltic people by Kelts or Gaels. The *na* would appear to be a fragment of the nominative plural of the old Gaelic article, and the second part, *gnathai*, is apparently cognate with *gnáth*, a manner, fashion, or custom; *gnathach*, continual; *gnath-bheurla*, vernacular tongue. In Albanic Gaelic there is the compound word *Gnàth-mhuinntir*, signifying native people; and Nagnata was applied by the Gaels to the people who preceded them in the occupation of Connaught.

The first part of the name Munster, *Mun*, is a contraction of *Mumhan*, the genitive of *Mumha*. The *mh* is silent both in modern Albanic and Irish Gaelic. It was anciently *Muma*. This name bears a strong resemblance to the Akkadian *mamu*, to dwell, plain, country; and the last syllable, *ma*, to the Finnic *ma*, land. "The Esths," says Dr. Isaac Taylor, in his "Etruscan Researches," p. 342, "call themselves *Rahwas*, the 'people,' their country *Ma-rahwas*, the land of the 'people,' and the name of their chief city, Revel, is a corruption of *Rah-wa-La*, the place of the people." Among the broken tribes of Nepal, earth is *máti* in Darhi; *mato* in Denwir; *mati* in Kuswar; and *máti* in Tharu. (W. W. Hunter's "The Non-Aryan Languages of India and High Asia," p. 118.) There is good ground for inferring that all these names are cognate, and that Munster was, in ancient times, colonised by an Altaic people.

Rhobogdii has evidently become the modern *Rúta*, anglicised Route, the north part of county Antrim. *An Ruta*, the Route, is still a living name in the songs, tales, and Gaelic of the Scottish Highlands. B, in Gaelic, undergoes what Zeuss calls the vowel inflection, which ordinary Gaelic grammarians call aspiration, and when this happens b takes the sound of v. In numerous words aspirated b is vocalised, and acquires the sound of oo; again, g aspirated is a sonant spirant. In this case, in consequence of these changes, the name becomes *Rúta*. It is such another instance as is Eboracum metamorphosed into York. The first syllable, Rho, is the equivalent intensive, *ro*, very, and the rest of the name, bogdii, appears to be related to the Gaelic verb *beacaim*, "I dwell," and to signify dwellers or inhabitants. Rhobogdii, then, means the real or old natives, a name given to them by the Goidels or old Gaels.

The Vodii dwelt in the northern part of county Cork, and, as already mentioned, would seem to have given the name Fodhla to Ireland. This people were seemingly of Finnic origin, and related to the following tribes mentioned in the following passage from Dr. Taylor's "Etruscan Researches," p. 78:—"The name of the Budii, another Median tribe, is also a Finnic

tribe name which is seen in the tribe names of the Vod and Wotiaks, and in the town-name of Buda in Hungary. Another Median tribe name, that of the Matiani, as well as the national name of the Medes, contains the common Ugric tribe name, *mat*, which is the precise equivalent of the Turkic *ordu* (horde), and means "tent."

Fodhla is probably equivalent to *Vod-la*, the place of the *Vod* or *Vodii*. One of the seven Pictish divisions of North Britain was Fodla or Fotla, to which the Dalriadic Scots, or Gaels, prefixed *ath*, next or other; so Athfhóthla signifies the other *Fodhla*. It is recorded in the Annals of Ulster that in the year 739 Tolarcan mac Drostan Rex Athfhothla was drowned by Aengus, and the same event is mentioned, at the same date, in the Annals of Tighernach. This Tolarcan was a Pictish sub-king. Athfhothla has been contracted into Athol, which is now a district in Perthshire.

The Lucani were a tribe in the south of Ireland whose name corresponds to that of the Lugi who dwelt in Eastern Ross and East Sutherland. In the region of Arracan and Burmah, *Lu* denotes *man*, in Burman, and, in Sak, *Lúan* is an obsolete Gaelic word for son, and *Luan* means lad, champion, &c. The *an* of these words shows them to be diminutives which point to a primary word signifying man.

The Venicones occupied the present counties of Forfar and Kincardine, and the Venicii, a name that differs but slightly, inhabited the county of Donegal in Ireland.

In the region of Siam and Tenasserim, *khom* means *man* in Siamese; *kun*, in Ahom; *kun*, *khun*, in Kámti; and *Khon*, in Laos. ("The Non-Aryan Languages of India and High Asia," p. 139. W. W. Hunter.)

The country of the Vacomagi comprehended Murray, Strathspey, Badenoch, and Athol. The second syllable of the name *com*, denotes kindred in Gaelic, and *coma* varies but slightly from *kami* and *kumi* in Kámi and Kumi, two languages in Arracan (*Ibid.*, p. 139).

The Smertæ were situated to the west of the Lugi and dwelt about Loch Shin. The *S* of this name seems to be prosthetic, and the name would appear to be properly Mertæ. It is now ascertained that the ancient Medes were Turanians. According to Canon Taylor, in his "Etruscan Researches," p. 78:—"Many of the Median tribe names are of the Finnic type. Thus, the name of the Mardi, one of the Median tribes, contains the characteristic Finn gloss *mart* or *murt*, 'men,' which occurs in the names of a very large number of Finnic tribes, such as the Mordwin and the Komi-murt." Smertæ or Mertæ, therefore, denotes men. In the Sunwar language, Nepal, Múrá signifies

man. *Muir* and *muireann* denote woman, and *muirn* means a troop or company, in Gaelic.

The Ceronas and Creonas occupied the north-west of Argyllshire and the south-west of Inverness-shire. The first parts of these two names, *Cero* and *Creo*, are obviously cognate with *Karu*, "man," in Mon or Talain, one of the languages of Tenasserim; *Cear* means offspring in Gaelic. The Carnonacæ probably extended from the Sound of Skye to Assynt, and the Cornavii inhabited Caithness. The two first syllables of these names, Carn and Corn, correspond to *Karu*; "man," in Mon and to *koro*, "man," in Kuri, in Central India; *Cearn* signifies "man," in Gaelic.

Taezali, Taezaloi, or Taxaloi, inhabited the present county of Aberdeenshire. The terminations, *ali* and *aloi*, in the varied forms of this name, correspond to *alu*, "man," in the languages Irula and Badaga of Southern India. *Taez*, *Taiz*, or *Tax* seems to be cognate with the old Gaelic word *Tas*, a "dwelling," and so Taxaloi means the "inhabiting men," or inhabitants of the district.

The Gadeni appear to have occupied Cowal; that is, the country between Loch Lomond and Loch Fyne; and the Otadini inhabited the county of Northumberland, and probably the counties of Roxburgh and Berwick. Canon Taylor tells us at p. 340 of his "Etruscan Researches," that the "root *sen* enters largely into the ancient Siberian tribe names"; and that "the same root appears as a suffix in the names of the Alani, the Roxalani, the Cumani, the Huns, the Ussuni, and other nations of Ugriic blood." With these may be classed the Gadeni and Otadini of Ancient Britain.

The Irians of Ireland, a people more ancient than the Heberians or Heremonians, are called in Gaelic *Slíocht Ir*, the offspring of Ir, latinised Hyrus. Ir, their eponym, means land or earth, which points to their being inhabitants of the island long before the two other peoples mentioned. Ulster was exclusively Irian, from the mouth of the Boyne to the Bay of Donegal, down to the second century. In Leinster the Irians had possession of Longford, the Queen's County, and part of Westmeath environing Uisneach Hill. The greater part of Kerry, the west of Clare, and a tract round Fermoy, were theirs in Munster ("Book of Rights," pp. 48, 65, 78, 100). They possessed Connemara, and scattered tracts in Mayo, Roscommon, Leitrim, and Sligo, in Connaught (*Ibid*). Thus the position of the Irian territories evidently shows that the Irians preceded the Heremonians, and were driven by the latter from the richer and more accessible districts of the island. It may be inferred, from Irian topography, that the race possessed the greater part of the island.

A great number of names of Irian Over-Kings of Ireland appear in the lists before Ugaine the Great; particularly, Ollamh Fodhla and his seven Irian successors. Again evidence is afforded by the partition of Ireland between the two Irian brothers, Cearmna and Sobhairche, a tradition which is supported by monumental evidence, the palaces of both, in opposite ends of the island, yet known by their names, and designated the oldest buildings in Ireland. *Dun-Chearmna*, Fort of Cearmna, was situated on the Old Head of Kinsale, in Courcy's country, in the county of Cork. *Dun Sobhairce*, Dun-severick, Sobhairce's fort, is an isolated rock, whereon there are some fragments of the ruins of a castle, near the centre of a little bay, three miles east of the Giant's Causeway, in the county of Antrim.

The Irian palace of Emania was the most extensive of its kind in Ireland. It was built, according to the researches of Irish scholars, 305 years before the Christian era, and destroyed in A.D. 322. The Irish Nennius informs us, and on this point there is reason to think that he is reliable, that the Irians were not brothers of the Heremonians and Heberians, but Picts or Cruithne. The Irian Ollamh Fodhla, and also the six Irian kings who succeeded him, are in this work called the seven Cruithnian kings that ruled over Ireland. It appears, in fact, that the Irians and Cruithnians are identical, and that they reigned in Tara before the Heremonians, but were thence expelled, and maintained themselves chiefly in Ulster, in the palace of Emania (Gaelic *Eamhain*. This word also denotes double, and as *Eamhuin* had an outer and an inner wall, so it is very likely that the palace was so called from the number of the walls).

Nennius speaks of a great colony of Picts in Ireland, which were for a long time in Eri, and acquired great power there, until they were driven out by Heremon, except some tribes which remained in *Magh Breagh* (Plain of Breagh). The old Gaelic form is Mag Breg, in which Breg is a genitive plural; and in the "Lives of SS. Fanchea and Columbkille," *Sliabh Breagh* is translated Mons Bregarum, in which Bregarum points to a nominative Brega. *Sliabh Breagh*, then, signifies the mountain of the Bregians. (See "Joyce's Irish Names of Places," First Series, 4th ed., p. 423.) These Brega or Bregians, then, were Picts or Irians, and as the Gaelic eponym of the Brigantes of the south of Ireland was *Breogan*, and as they were designated *Síol Breogain*, the descendants of *Breogan*, they were, likely, a kindred people to the Bregians, and therefore Irian or Picts. The Brigantes of Britain would seem to have derived their name from a pre-Keltic people, and originally akin to the Irish Brigantes.

At an early period the letter p was wanting in Gaelic, and in loan words from other languages, c hard, equivalent to k, was substituted for it. Britannia was converted into *Prydain* by the Britons of the south, and into *Prydyn* by the Picts and Keltic Britons of the north. Pictland, or Pictavia, was named *Cruithin Tuath* by the Scots or Gaels, in which *Prydyn* was changed into *Cruithin* and *Tuath*, means north; so *Cruithin Tuath* denotes North Britain. Many of the Picts of North Britain settled among their Irian kinsmen in Ireland, and also among the Gaels or Scots, and hence comes the eponym *Cruithne* and Cruithnigh, angl. Cruithnans, which signify Britons. Hence the confusion about the settlements of the Picts in Irish legendary history.

The name *Picti*, which Roman writers misunderstood and confounded with *picti*, "painted men," with which it has nothing to do, was the people's own name for themselves, whatever it means, and is preserved in the Lowland Scotch name for them, Pechts. In Skene's "Chronicles of the Picts and Scots," at p. 380, "Gewictis," a Gaelic form of the name Pict, occurs, which would, at first, have C substituted for P, as in the case of *Criuthin* for *Prydyn*: "and quhen Iber comme to eild, Gayele send him in yat cuntre yat now is callit Irland, and fand it vakande, bot of a certain of Gewictis, ye quhilk he distroyt, and inhabyt yat land, and callit it eftir his modir Scota, Scotia." Pictones is a name apparently cognate with *Picti*, and the latter people were no doubt akin to the former. The Pictones were situated along the southern bank of the Loire, and were an Aquitanian people, on account of which, evidently, Augustus extended Aquitania to the banks of the Loire. Strabo tells us that the Aquitanians resembled the Iberians more than the Gauls. They were seemingly a Turanian people.

That gynécocracy prevailed among the Picts is supported by this passage from "Tract on the Picts," p. 328, Skene's "Chronicles of the Scots and Picts:"—"And in the time of Erimon, Gub and his son, viz., Cathluan, son of Gub, acquired great power in Erin until Erimon banished them out of Erin, and they made peace after that, and Erimon gave them the wives of the men who were drowned along with Donn, viz., the wives of Bress, the wives of Buass and Buaighe; and they declared by the sun and moon that they alone should take of the sovereignty and of the land from women rather than from men in Cruthentuath for ever; and six of them remained in possession of Breaghmagh, and from them are derived every spell, and every charm, and every sneezing, and the voices of birds, and all omens, and all talismans that are made."

Lists of the names of Pictish kings contain names very

unlike the names of ancient Scottish or Irish kings; none of the latter ever begins with P or hardly ends with the same letter. At p. 5 of Skene's "Chronicles of the Scots and Picts"—the Pictish Chronicle—there occur *pant*, *urpant*, *uip*, *uruip*, and at p. 6, *Vipoig Brude* comes before the names on the list on p. 5 twenty-seven times, and it is probable that it means chief king. At p. 7 this passage throws light on the meaning of *ur* in *urpant*, &c.: "Da Drest, id est, Drest filius Gyrom id est, Drest filius Wdrost, V annis conregnauerunt, Drest filius Girom solus V annis regnavit." So from this passage it appears that *Da Drest*, "Two Drests," Drest, son of Gyrom, and Drest, son of Wdrost, reigned together five years, and that Drest, son of Girom, reigned alone five years. The *Da* (two) here explains *ur* in the names *urpant*, *urgant*, *urnith*, *urfecir*, *urcal*, &c., which evidently signifies two; thus *urpant* is preceded by *pant*, *urgant* by *gant*, *urnith* by *gnith*, *urfecir* by *fecir*, *urcal* by *cal*, &c.; so like *Da Drest* (two Drests), *ur* therefore denotes two of the name that follows it. In Georgian *Ori* denotes two; in Chinese, Nankin, *Urh* (ár); in Chinese, Pekin, *Urh*; in Gyami, Chinese frontier, A'r. (W. W. Hunter's "The Non-Aryan Languages of India and High Asia," p. 34.) In Stoke's "Goidelica," 2nd ed., pp. 106–121, the author examines the Gaelic entries in the Book of Deir (from the Abbey of Deir in Buchan, Aberdeenshire). *Pet* or *pett* occurs five times in the names of gifts of land or town lands made to the abbey at different times. *Pet* is usually followed by a Gaelic attributive. It is related in the first entry that Bede the Pict, who was Grand Steward of Buchan at the time, gave to St. Columba and his pupil Drostan, son of Cosgrach, the town of Deir, in freedom for ever from Grand Steward and chieftain. He also gave them in offering from *Cloch in tiprat to Cloch pette mic Garnait* (Stone of the well to Stone of *pette* of son of Garnat).

Mr. Whitley Stokes, at p. 120, "Goidelica," fancifully, and very unsatisfactorily, tries to identify it with the Irish Gaelic word *pít*, denoting a portion of food. It appears to me to be, evidently, a pre-Keltic word. It takes the form *Pit* in modern Scottish topography. In Slater's "Directory of Scotland for 1882," I have counted the names of places beginning with *Pit*, and they are as follows:—Aberdeenshire, 14; Fife, 25; Inverness-shire, 3; Forfarshire, 10; Sutherland, 2; Ross-shire, 2; none in Argyllshire, Dumbartonshire, Stirlingshire, Caithness, Orkney, Shetland; 1 in Haddingtonshire, the only one south of the firths of Forth and Clyde.

With *pet* or *pett*, now *Pit*, sometimes, in a few instances, yet, *Pet*, a townland, hamlet, or village, correspond *Uraon Padda*; *Ho Hattu*; *Mundala*, *Hatu* in Central India; *Kota Patti*, in

Southern India; all denoting village. (Hunter's "The Non-Aryan Languages of India and High Asia," p. 163.)

The following names of towns which would seem to be cognate with *pet* occur in Hyde Clarke's "Researches in Pre-historic and Protohistoric Comparative Philology," p. 54:—"Paita, Pita, Putu, in Peru; Pauta, in New Granada; Pitu, in Mexico; Peto, in Yucatan; Bata, in India, S.; Beda, in Mesopotamia; Pida, in Pontus; Eboda, Padua, in Palestine; Pitane, in Mysia; Patara, in Lycia."

The word *dabhach*, as signifying a portion of land, occurs in the Book of Deir. In Stoke's "Goidelica," p. 111, in an extract from the Book of Deir, there is the place-name Dabaci mentioned, and four *dabhachs* (*cetridabach*) free from all burthens. Probably *Dabaci* is the old Gaelic plural of Dabach.

The modern Gaelic spelling is *dabhoch*, to distinguish it from *dabhach*, a vat. In Shaw's "Gaelic Dictionary" it is said to be "a farm that keeps sixty cows"; but in McL. and Dewar's, "a farm of extent sufficient to pasture a certain number of cows, varying in different districts. In the Hebrides the number 320 is understood." At p. 117, "Goidelica," Mr. Whitley Stokes erroneously assumes that *dabhach*, a vat, is a liquid measure applied to land, as pint, pottle, and gallon are in Ireland. These last are fixed liquid measures, but a vat was never such, for vats are and always have been of various sizes. *Dabhoch* is an occasional place-name joined to an attributive, and sometimes contracted into *Dauch* or *Doch*. There are *Davochbeg* (Little Davoch) and *Davochfin* (White Davoch), in Sutherland. *Dabhach* would appear to be akin to Georgian *Daba*, "a village" (Hunter's "The Non-Aryan Languages of India and High Asia," p. 163), and to *Tabi* and *Teabo*, Yucātani to *Tabeo*, New Granada, and to *Tabachula*, Guatemala, equivalents to "town." (Hyde Clarke's "Researches, &c.," p. 57.)

Deir would appear to be cognate with *Derá*, denoting village in Dhimal, N.E. Bengal, but its meaning was not understood by the Gaelic speaking monks of the Abbey of Deir. Their explanation was Drostan's tears came on parting with Columcille (St. Columba). Said Columcille, "Let Déar ('tear') be the name henceforward," Stoke's "Goidelica," p. 109. In this manner Gaelic ecclesiastics, bards, and legendary chroniclers in Ireland and Scotland explain pre-Keltic names of men and places at all times. *Deir* was so called before it was ever visited by a Gaelic-speaking Christian missionary.

It is well understood that the Gaelic of Ireland, Man, and Scotland in the eleventh and twelfth centuries borrowed largely from the language of the Scandinavian invaders who settled among them. There is *ster*, a contraction of the Norse *stadr*, a

place, suffixed in the names of the three provinces, Ulster, Leinster, and Munster, of which the first syllables are contractions of the Gaelic names. Nevertheless, Scandinavian place-names are sparse in Ireland; the Scandinavian place-names in the island of Islay alone exceed in number all that are mentioned in Joyce's "Irish Names of Places." The amount of words borrowed from English is very large in modern written and spoken Irish Gaelic as well as Albanic or Scottish Gaelic; but the Manks Bible contains a much greater number of English loan words than either the Irish or Scotch Gaelic Bible.

It may be therefore assumed that the Kelts, after having succeeded in obtaining settlements in Ireland, would borrow considerably from the dialects of those tribes who had been settled there before them; and the dominant tribes among those were, no doubt, Iberian and Turanian. Now numerous old Gaelic words, and many are still living, bear a very strong resemblance to non-Aryan words found in the languages of the hill tribes of India and High Asia, of Africa, and of Mexico and Central America. Here follow some of them: "*Bealltaine*." This word occurs in Cormac's "Glossary," allowed by Mr. Whitley Stokes to be Old Irish, but written in Middle Irish orthography. It is still a living word in a slightly altered form; in Scotch Gaelic *Oidhche Bhealltainn* is the last night of April, and *Latha Bealltainn* is the first day of May; *Bealltaine* is a genitive which seems to point to *Belltan* as the nominative. The word is preserved in Lowland Scotch as *Belten*. The first syllable *Bell* evidently signifies *Sun*, and the second part, *taine*, would appear to be the genitive of *tan*, time, now only used in the adverbial phrase *an tan*, the time or *when*. *Bealltaine* then denotes sun's time or course, and *Bliadun*, now *Bliadhna*, a year, is derived from the same source, and means sun's time or course. The sun is named *Belá* in *Dhimál* and *Kocch*, N.E. Bengal; and in *Khond* and *Chentsu Belá*, Central India. (Hunter's "The Non-Aryan Languages of India and High Asia," p. 158.)

Tatha (Tay) corresponds to *Tui*, the name for water, in *Kami*, *Kumi*, and *Mru*, *Aracan* (*ibid*, 164); *Carron* and *Garry*, names of rivers in Scotland, correspond to the river names *Garra* in *Ho* (*Kol*), *Kol* (*Singbhum*), *Bhumij*, and *Mundala*, and in *Uraon Khár*, Central India (*ibid*, p. 150). Gaelic *Caochan*, a streamlet, seems related to the river names, *Cauca* in New Granada, and *Caicus* in Asia Minor. G., *Sian*, rain; the river Shannon is named *Senos* in Ptolemy, and *Sionann* in modern Irish; New Granada, *Sinu*; India, *Sonus*; Sicily, *Asinarus* (Hyde Clarke's "Researches, &c.," p. 49). It has been shown by Mr. Whitley Stokes that *Seine* is not derived from *Sequana*, the ancient name

of the river, but from *Sena*, the name of one of its tributaries. *Cottud* in Old Gaelic, a mountain, likely related to *cotadh*, a millstone; "Cotopaxi and Cotocha Ecuador, Cottia Alps." (Hyde Clarke's "Researches in Prehistoric and Protohistoric Comparative Philology," &c., p. 51.)

Gaelic, *Tain*, water. Tanais, ancient name of the Don in Russia. Tinna, the ancient name of the Tyne, misapplied to the Tay by Ptolemy.

Gaelic words are here compared with some of the Hittite words and their cognates in Major Conder's list in his paper on "The Early Races of Western Asia," "Journal of the Anthropological Institute of Great Britain and Ireland, August, 1889," pp. 30-51. Gael., *Achadh*, a plain, a field; Hittite, *Aker*, Etruscan, *ager*, "field"; Lapp, *Aker*, "field." An, good, noble. Hit., An, "god"; Hit., Gu. G., *Guth*, voice, word; G., *Ceann*, enclosure (O'Davoren's "Old Irish Glossary.") Hit., Kan, Gan, "enclosure"; G., Cu, a champion, a hero, a warrior; *Cú* signifies a dog, but it seems to be rather a homonym than that the former is merely a figurative use of it, for in a ballad that recounts a fight between the great Ultonian hero, Cu-chulainn, and the Norse warrior king, *Garbh Mac Stairn*, Cu-chulainn, in his reply to the Norse king says, "I also give the word of another king, &c." Animal names become men's names, names such as Sithach, a wolf, *Faolan* (Fillan), a little or young wolf; *Sionnach*, a fox, &c.; but are not used to signify champions or chiefs of tribes or territories; thus *Cu-Connachta*, champion or chief of Connaught; *Cu-Uladh*, champion or chief of Ulster or Ultonians; *Cu-Midhe*, champion or chief of Meath; *Cu-mara*, sea champion. There is certainly ground for inferring that *cu*, in this case, is originally a different word from *cu*, a dog, and akin to Hittite, Akkadian, and Susian Ku, "king." G., *cruach*, a hill; *corrach*, steep; Hit., *Kur.*, mountain; Lapp, *kor*; Teheremiss, *korok*. One of the three best legends of the Gaels, according to their own view of the matter, was the tale of the sons of Uisnech; one of the three sons was Nais, later Naois; the names of the other two brothers are explained by Gaelic, but *Nais* is not. They were, of course, three princes, who eloped with their uncle's wife, whose name was Déirdre. The tale ends by their being slain in battle with King Concobor of Ulster, and Déirdre stabs herself and falls down dead beside their corpses. There are assuredly good grounds for believing that the name Nais is cognate with Hittite, Nazi, "prince." G., *Súgh*, juice, moisture, a wave; Hit., swamp; Kirghiz, *sūk*, "flowing"; G., *Tuirighen*, a king, a lord; Tuirighin, a king, a judge, a tongue, a pillar or tower; Hit., Tarka, "chief"; Etruscan, *Tarchu*, Tarchi (Tarquin); Siberian, *Tarkhan*; G., Tor, sovereign,

lord, noble; Hit., Tur, chief; G., *All*, a bridle; *alaire* occurs in some of the West Highland tales for steed; *loth*, a filly. Asia Minor words, Carian, *Ala*, "horse"; Hungarian, *lo*.

The Gaels, oldest written form *Goidel*, pl. *Goidil*, are supposed by some writers to have preceded the Cymry in Britain, and to have been pressed westwards by these into Ireland. There is every reason, however, to admit that the first Kelts came into Britain across the narrowest passage between Gaul and Britain, but that as they extended themselves to the west of Gaul and Spain, and had acquired a knowledge of navigation from the Iberians, who were subdued by them, they found it easier and preferable to make their way to Western Britain and to Ireland, where their Keltic kinsmen in Britain had not yet entirely conquered the non-Aryan inhabitants of Western Britain, and had not crossed the sea to Ireland. Irish legendary history brings them from Spain; but it is more probable that they came from the north-west of Keltic Gaul. The Veneti, according to Cæsar, were a sea-faring people, well skilled in navigation, and were in the habit of making voyages into Britain. Now *Fène*, one of the names by which the Irish Kelts called themselves, bears a near resemblance to Veneti. There is a difference in quantity between the first syllables, but the provection of V, equivalent of W, into F, may account for it, as also in the case of Gw in *Gwynedd* or *Gwynud*, North Wales. There hardly need be any grounds for hesitating, although a little contrary to rule, that these names are cognate.

Connected with this old name, *Fène*, are *Féine*, a "farmer, ploughman, or champion"; *Feinne*, the celebrated militia of Ireland; *Fiann*, a soldier of the ancient Irish militia (O'Reilly's "Irish-English Dictionary."). *Feinn* is the Highland name for the same warriors, and on the tales and ballads which related their fictitious exploits, for generations, throughout the Scottish Highlands, Macpherson based his celebrated "Poems of Ossian." In a contribution to the *Scotsman* newspaper of January 16th last, by Professor Mackinnon, "On the Feinn," quoting from the "Book of the Dun Cow," part of a legend contained in it, he says:—"According to this legend, Fionn was the son of Cumhall, son of Trenmor, who was, at one time, *rigfénnid*, that is, 'king-warrior,' of Ireland, and in the service of Conn *Cet-chathach*, 'the fighter of a hundred,' a monarch of Ireland who died 197, A.D."

One of the old Irish legends speaks of Heremon, the eponym of the most powerful branch of the Gaels, marrying a Dannanian princess, and the best explanation is that the first Kelts came to Ireland, like the Saxons to Britain, to aid the Britons against the Scots and Picts, to aid some Irish king or kings against

some other kings or rebellious subjects. The oldest form of *Eireamhon* is Emer. In Fiacc's Hymn, one of the Irish hymns in the "Liber Hymnorum," in line 35, we have "Patraic prid-chais do Scotaibh," *Patrick preached to Scots*, and in line 37, "Meicc Emir meicc Erimon," *Sons of Emer, sons of Erimon*, in which the genitives of Emer and Erem appear, and these sons of Emer and sons of Erem are there mentioned as two branches of the Scots. In the Syllabary at the beginning of Professor Sayce's "Assyrian Grammar," p. 35, the Akkadian words, "erim, lakh," are translated soldier (host); and certainly *erim* bears a strong resemblance to Erem. Emer was, in later writings, changed to *Eber* and *Eibhear*. Professor Sayce tells us in his "The Hittites," p. 14, that "the common Assyrian title of the district in which Damascus stood, Gar-emeris, is best explained as the *Gar* of the Amorites." He informs us, at p. 15, that "the Amorites were a tall and handsome people, depicted with white skins, blue eyes, and reddish hair." They were evidently the same race as the ancient Libyans of Africa, who are now represented by the Kabyles, "who are found in large numbers in the mountainous regions which stretch eastwards from Morocco." Professor Sayce further states: "Their clear white skin, their blue eyes, their golden-red hair, and tall stature, remind him (the traveller) of the fair Kelts of an Irish village." Further on, at p. 16: "It is clear, then, that the Amorites of Canaan belonged to the same white race as the Libyans of Northern Africa, and, like them, preferred the mountains to the hot plains and valleys below." Whether Emer is to be equated with "Amaur," or rather with Ivernii, is a matter of further inquiry. The Fomorians, a name which signifies "Seafarers," who are so celebrated in Irish legendary history, were Libyans, and hailed from Northern Africa. Keating, in his "History of Ireland," calls them "sea rovers of the race of Cam, who fared from Africa." They have left some place-names in Ireland. Balar was one of their kings, and *Carn Bhalair*, in the north of Ireland, commemorates him; one of their queens was named Cethlenn (Kethlenn), and her name is preserved in Enniskillen, denoting island of Cethlenn. She was the wife of Balar of the blows already mentioned. These Fomorians fought and intermarried with the descendants of Neimhidh, and with the other peoples who succeeded them.

The name *Gaoidheal*, oldest known written form "Goidel," is defined in O'Reilly's "Irish Dictionary," "a hero." It is likely that the word is derived from *gaide*, armed with a spear, and in this case would signify a spearman, otherwise an armed man or soldier. *Clanna Milidh* corresponds in meaning. This term denotes the military or Milesian clans equivalent to *Clannanan Gaidheal*, the

clans of the Gael. The eponym *Mileadh* or Milesius is derived from the Latin *miles*, *militis*, a soldier, and the Gaelic *milidh*, a hero, is a loan word from the same source. *Scoti*, a name which has caused so much confusion, both in Irish and Scottish history, was first borrowed from the Irish warriors, in Britain, by the Romans, against whom they were fighting, and in a couple of centuries thereafter, re-borrowed by the Gaels into their own language from the Latin. In O'Davoren's "Glossary" occurs "Scath no Scoth, i Laoch"; that is, *Scath* or *Scoth* denotes warrior, or soldier. So, therefore, the Irish warriors in Britain designated themselves *Scothi*, "warriors," which the Romans modified into *Scoti*, and named Ireland, *Scotia*. It appears, then, that every name by which the Irish Kelt called himself, from first to last in Ireland, and after passing from Ireland to North Britain, meant warrior or soldier. The *th*, in Gaelic, is generally pronounced like *h* in English, but in many districts, both in Ireland and Scotland, like *j* or *x* in Spanish. It is likely that when the Scots, or Gaels, came in contact with the Romans, in Britain for the first time, in the year 360, *th* was then a mute aspirate, and then their name *Scothi* would be pronounced *Scot-hi*, which became in the Roman mouth *Scoti*, whence the Roman name *Scotia* for their country, Ireland,

When the Irish Kelts, or Gaels, had fully subdued and had considerably blended their blood with the pre-Keltic races, they began to invade Britain about the year 360, A.D. Subsequent to this period, when the Romans were tottering on their legs, and had at last to withdraw from Britain, they planted colonies in Wales, and conquered the Picts of Galloway, to which they gave their own name. They then allied themselves with the Picts of North Britain against the Britons, and subsequently planted a Scottish or Gaelic colony in the north-west of north Britain from Antrim county, named Dalriada, for the district in county Antrim, from which they had come; which, at first, for a length of time, was a sub-kingdom under the over-kings of Ireland, the mother country; but latterly refused allegiance to the Irish over-king, and set up an independent monarchy.

DISCUSSION.

Mr. HYDE CLARKE said they had had a Celtic evening, and the paper of Mr. MacLean dealt with one of the most complicated problems of anthropology; but its obscurity would be overcome if the canons of anthropology were applied. The strictest of these was that race and language were not necessarily correlative, or equivalents of each other. We were cautioned, too, to regard the

effects of mixture of races. Professor Huxley, a former president, and Dr. Beddoe, the present one, had shown there was a continuous element in the races of these islands, and that there were great evidences of relationship and identity throughout the populations. Dr. Beddoe was inclined to recognize the basis resulting from the anterior population as Iberian, adopting the Roman suggestion. Under all circumstances the Celts would be regarded as a later and intrusive population, and of this their languages gave testimony on their decline. Here philology came in, and Professor John Rhys, Mr. MacLean, and others had shown in the Celtic elements evidence of an Iberian philology and mythology. The Iberian antecedents were further illustrated by the statement of the historian Bede as to female succession among the Picts, explained by the doctrines of exogamy promulgated by Mr. MacLennan. The Iberian populations here as elsewhere in Europe used many languages and when a sole language as Celtic came in contact the polyglot condition was swept away. The spread of great dominant languages in east and west marked great historical and anthropological epochs. Hence we find Celtic widely adopted in these islands, and by people of different races. It did not necessarily follow that any great invasion of Celts took place, like the invasion of Italy by the Gauls. On the other hand, the Iberian populations would show a weak affinity for the Celtic languages. They accepted Latin and abandoned it, they accepted English and Dano-English, and in Scotland this is readily seen, for it became an English-speaking country less by the influx of the English, than by the abandonment of the Pictish and Celtic languages. It is to be noted that the exogamous Iberians more readily intermarried with immigrants and strangers, and thus the Danes and English and Normans were largely introduced in Scotland. In these investigations place-names afforded a mass of material, and it was a great advantage to have them discussed by members of the modern school, like Mr. MacLean and Dr. MacNeill, men not only acquainted with the old literary Gaelic, but having the further advantage of knowledge of the spoken language.

Dr. MACNEILL, in acknowledging a vote of thanks for undertaking to read the paper of his friend, Mr. MacLean, spoke of the gratitude due from Highlanders like himself to the labours of the members of the Anthropological Institute, who had written on the pre-Celtic and Celtic period of the history of the British races. He had personally found the volumes of their "Journal," of the utmost value in connection with some historical sketches which on one occasion he had undertaken to supply. In the case of difficult points on which the recognized historians were either utterly wrong, confused or silent, he found the papers of the Institute of very great help. He thought Mr. MacLean was one of the very few in Scotland who could deal competently with the subject of his paper that evening. The author of that contribution to their discussions was fairly free from all prejudice, racial or merely national; and the result of his inquiries, applying in the pre-Celtic periods

principles already illustrated by their Chairman, was to greatly extend the bounds of their knowledge of those early ages of the ancient peoples in these islands. Indeed the clear gains already made would fill an ample volume. Mr. MacLean's paper, in its discussion of the ancient terms which indicate the close connection that existed in early times between Albin and Erin, would largely help to a definite conclusion respecting the origins of those much-discussed peoples, the Picts and Scots.

EXHIBITION of a SKULL dredged on the MANCHESTER SHIP CANAL WORKS.

By ISIDORE SPIELMANN, F.S.A., M.A.I.

THE skull, which has been lent to me by Mr. James Abernethy, the Consulting Engineer to the Manchester Ship Canal Works, was found during dredging operations at a place called "Frodsham Score" in the township of Frodsham, and near the River Weaver.

It was found at a depth of 27 feet from the surface in fine sharp sand, and as the work at the spot named was being executed by manual labour, the skull rolled out from its resting place, as the sand in front of it was removed. A section of the soil, in which the skull was found, shows:—

1 foot of earth,
6 feet of red clay,
3·6 feet of blue silt,

and the rest fine sharp sand, under which runs New Red Sandstone the entire length of the canal works, and which crops up suddenly here and there.

Dr. Garson, who has measured the skull, finds it is 174 mm. long by 138 mm. broad, giving a cephalic index of 79·3.

There are, he says, no very characteristic marks about it, which could enable one to say with certainty to what race it belongs, or the period to which it belongs. It is not a long-barrow period skull, but rather a Celtic one, though not a very pure type. It is probably not more than 2,000 years old at the very utmost, and very likely much more recent.

Dr. Garson also says that objects found in the strata in which it lay must be the chief guide in determining the period. Unfortunately, nothing has been found except some red deer horns, and a canoe made in one piece in oak, which has been sent to the Manchester Museum.

The chief characteristic which leads one to suppose it belonged to a later period than the early bronze age is the absence of the large superciliary ridges found in the pure Celts.

I am informed that such types of skulls have been found in the bed of the Thames in clay, and are generally well formed.

Dr. Reeves, of the College of Surgeons, agrees that the skull is that of a young man aged about 23, and he is of opinion (as are some other surgeons) that the fractures to be seen at the back were caused at the time of death, and actually caused death.

It would be interesting to know *what kind* of instrument could have inflicted these fractures.

Some members of the Geological Society consider that the spot where the skull was found was formerly the bed of the River Weaver, and which has since changed its course. This they gather from the quality of the sharp river sand.

DISCUSSION.

Prof. RUPERT JONES thought the skull did not belong to a very remote period, and that, being buried in simple river sand, how long ago it was deposited would be very difficult of determination.

Mr. T. V. HOLMES said that he should like to call attention to the extreme uncertainty of the age of objects found in river-deposits. A few years ago he had visited, in the company of Mr. Whitaker, the excavations then being made for the docks at Lynn. There, in gravel, at a depth of 12 foot from the surface, had been found a large number of the soles of shoes or boots, together with some old-fashioned tobacco-pipes. These objects, in spite of the depth at which they appeared, could not, however, have been more than from one to two centuries old. They had been deposited in an old channel of the river, which had changed its course since their deposition.

APRIL 22ND, 1890.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From the AUTHOR.—Ten Years' Travel and Sport in Foreign Lands; or, Travels in the Eighties. By Heywood W. Seton-Karr, F.R.G.S., &c.
- The Village Community, with special reference to the Origin and Form of its Survivals in Britain. By G. L. Gomme.
- On Etruscan and Libyan Names. A comparative Study. By Daniel G. Brinton, M.D.
- Mackenzie's Last Fight with the Cheyennes: A Winter Campaign in Wyoming and Montana. By Captain John G. Bourke, U.S.A.
- Le Premier Établissement des Néerlandais à Maurice. By Prince Roland Bonaparte.
- Le Glacier de L'Aletsch et le Lac de Märjelen. By Prince Roland Bonaparte.
- Essai d'une Classification des Races Humaines, basée uniquement sur les caractères physiques. Par M. J. Deniker.
- Sul Museo Dell' Imperatore Augusto. Nota di E. Regalia.
- From the GOVERNMENT OF PERAK.—The Perak Government Gazette. Vol. iii. Nos. 1-7.
- From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1890. Heft 1.
- Correspondenz Blatt. 1890. Nos. 2-4.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. 1890. Nos. 4.
- From the ROYAL ARCHÆOLOGICAL INSTITUTE.—The Archæological Journal. Nos. 89-168.
- From the SOCIETÀ ITALIANA DI ANTROPOLOGIA, ETNOLOGIA E PSICOLOGIA COMPARATA.—Archivio per l'Antropologia e la Etnologia Vol. xix. Fas. 3.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovié. Comptes Rendus des Séances de l'Anné 1890. Nos. 3, 4.
- From the SOCIETY.—Proceedings of the Society of Antiquaries of Scotland. 1888-89.
- Proceedings of the Royal Geographical Society. Vol. xii. No. 4.
- Proceedings of the Society of Biblical Archæology. Vol. xii. Part 5.
- Proceedings of the Royal Society. No. 287.
- Journal of the Society of Arts. Nos. 1942-1952.
- Bulletin de la Société d'Anthropologie de Lyon. 1889. No. 3.
- From the EDITOR.—The Journal of Mental Science. Vol. xxxvi. No. 117.
- Science. Nos. 372-375.
- Revue d'Ethnographie. Tome viii. No. 3.
- Revue Scientifique. Tome xlv. Nos. 13-16.
- Bullettino di Paletnologia Italiana. Tomo v. No. 12.

DR. JACQUES BERTILLON, the chief of the Statistical Department of the Municipality of Paris, described and demonstrated the Method now practised in France of identifying Criminals by comparing their measures with those of convicted persons in the Prison Registers. The address was delivered in French, and translated orally by Dr. Mouat.

NOTES on M. BERTILLON'S DISCOURSE on the ANTHROPOMETRIC MEASUREMENT of CRIMINALS.

By F. J. MOUAT, M.D., LL.D., F.R.G.S.

THE measurement of the various bony parts constituting the framework of the human body has long been employed for the determination of races, the identification of human remains found in geological strata, and other indications having no geological significance, long before Anthropology—the natural history of mankind—became a special branch of science in our own time. They are the only means of determining the antiquity and place in nature of Man, which the changes caused by time and the agencies in operation in forming and fashioning the earth up to the present time, have left us.

Few branches of ethnology in its restricted sense have been cultivated with so much success—not the least useful outcome of which is the Institution in which we are now assembled.

One of the most interesting examples known to me of the use of bones for the purpose of personal identification occurred but a few years since, during the rebuilding of the Church of St. Peter's in the enclosure of the Tower of London. You may remember that in it were buried the bodies of many illustrious persons executed in the Tower some three centuries since, and as it was necessary to disturb the place of their sepulture, Her Majesty gave strict orders that any remains which might be discovered of those persons should, as far as possible, be identified, treated with every reverence, and reinterred in the places known to have been occupied by them, after execution. I was privileged to assist in this examination, and having, many years ago, prepared and published for the Government of Bengal, in English and Hindustani, an illustrated work on anatomy for educational purposes, I had paid much attention to the subject. It was singular to observe, in the careful sifting of the earth in the places of sepulture, that not a particle of the wood or metal used in the coffins was found, whilst some of the bones were in a wonderful state of preservation. Chief among them

were those conjectured to have belonged to the unhappy Queen Anne Boleyn. On arranging those of the head on a sheet of paper, in their natural order, and comparing them with the Chandos portrait of that illustrious lady, it seemed almost possible to reconstruct from them the features of life. Among the bones was an unusually large thigh bone of a woman, the only fragment of her body that was discovered. From the position in which it was found it was supposed to have belonged to the Countess of Salisbury. Those interested in such matters will find all information regarding it in the work of the late Mr. Doyne Bell on the subject.

In France the most successful recent cultivators of anthropology were the elder Bertillon, Quatrefages, and Broca, the founders of the existing School of Anthropology in Paris. The latter, in his learned article on the subject in the "*Dictionnaire Encyclopédique des Sciences Medicales*," remarks, regarding certain of the methods employed, that in order that the statistics furnished and published should have the value of fixed standards, it is above all things necessary that all observations collected and recorded, should be obtained by strictly uniform procedures. In explaining the contradictory results made known by different authorities regarding, for example, cephalometry, cranial angles, &c., all factors well adapted for statistical use, M. Broca found that the differences were nearly all due to diversity of procedure and different points of departure. It is then, he says, indispensable to adopt for every mensuration a constant and invariable procedure, sufficiently simple to be understood by all observers not possessed of scientific skill. An example known to me of an important fallacy was in the celebrated Professor Tiedeman's plan of measuring the capacity of the skulls of different races, by taking the whole of the interior, with no separation of the brain space from that of the cerebellum.

To the sons of the elder Bertillon is due the application and record of the anthropometric method to the identification of offenders before and after trial, of which the originator is M. Alphonse Bertillon, who has directed its working since its introduction, and his brother Dr. Jacques Bertillon, the chief of the statistical department of the Municipality of Paris, who is its recorder.

The key note to the plan is the perfect identity of a system of individual examination by simple uniform methods, beyond the reach of fancy or fiction, or imperfections of memory or observation. These are applied to certain fixed parts of the body carefully determined, and multiplied by application to a vast number of individuals taken at random, as criminals must

of necessity be. The plan has been worked in Paris with so much success as not to have been attended by a single failure since its introduction in 1882, among the many hundreds to whom it has been applied, as I shall presently endeavour to show you.

Simple as the method now seems to be, its practical application occupied its discoverer for four years with constant study and observation, as M. Alphonse Bertillon tells us.

With this preamble, I shall now proceed to the immediate subject of my discourse, dividing it into two distinct parts, in both of which I can only be the mouth-piece of the authorities whom I shall put in evidence, as much as possible in their own words. Having had no personal knowledge of its working, I shall not attempt to exercise any originality in its treatment, but adhere closely to my text.

The first part will naturally be devoted to the author of the system, whose views were explained and illustrated to the International Prison Congress held in Rome in 1885, and are exceptionally valuable as embodying his personal experience and the steps by which he arrived at his conclusions up to that time.

When there, the system had been comparatively but a short time in effective operation, but the difficulties connected with its working had been satisfactorily overcome. M. Bertillon explained it in detail at Rome, illustrated it, and I have been put in possession of his views, which have undergone no change since, as I have been informed.

My personal knowledge of its working is confined to having witnessed a successful exhibition and demonstration upon a prisoner arrested the previous evening, and at that time unknown to and unrecognized by the department. It occurred during the meeting of the International Statistical Congress in Paris, in October last, and was witnessed by many others at the same time.

I was so strongly impressed with the value and importance of its application to the identification of criminals, with special reference to their antecedents, that I asked Dr. Bertillon if he would give a practical illustration of it in London, which he readily and kindly consented to do.

That he has been unfortunately unable to fulfil his promise,* in circumstances known to you, must be a matter of regret to

* Dr. Bertillon had intimated his absolute inability to come to London for domestic reasons, but he fortunately and unexpectedly put in an appearance on the day of meeting of the Society. I have, nevertheless, left the notes exactly as they were when the certainty of his absence was presumed.

us all, both on account of its cause and its consequence—a regret of which I think I may fairly take the greatest share, as upon me has unexpectedly fallen a task in which I can but imperfectly represent him and his brother on this occasion

During my long connection with prison administration in India, nothing impressed me more strongly than the need of some unerring test of the identity of habitual criminals, with special reference to their re-convictions and the fresh crimes committed by them. Organized bodies of criminals, some hereditary, and all more or less dangerous, required special agencies for their detection and repression, such as what is known there as the Dacoity Commission, which afforded abundant proof of how important a factor this identification was. Such a means of stamping out gangs of robbers there, and the periodical outbreaks of burglary in this vast city, would in my belief have more influence in rendering it difficult and dangerous to live by criminality as a profession, than any of the sentences passed, and disciplinary measures following them.

The powers of human observation alone are very limited, and the correct recollection of the individuality of persons only occasionally seen, even by the sharpest of our detectives, is so rare, as to fail entirely times out of count when put to a practical test in a Court of Justice. How difficult personation again is to detect, has often been seen, never probably so strikingly as in the case which occupied so much public attention a few years since. Mistaken identity is by no means unknown even in ordinary life, without any suspicion of wrong-doing, as has occurred to myself twice of late years, once in Germany, and a second time in this city. In both cases I had the greatest difficulty in satisfying my supposed friends, on hospitable thoughts intent, that I was not the real Simon Pure. The first was a real comedy of errors, which might disturb the gravity of this assembly were I to relate it.

The discovery and use of photography seemed at one time to afford an infallible test of identification. Although more exact than any other method then in use, it has failed either to be reliable, or on the large scale manageable. Individuals not only undergo subtle changes of feature and form as age advances, and expression, on which so much reliance was once placed, can be so completely changed by a clever culprit, that however completely the fleeting impression produced by any of the instantaneous processes now known can be fixed on the negative, it often fails to secure the certain recognition on which alone absolute reliance can be placed. Yet photography may be and is still, within reasonable limits, found useful—as I found in

so remarkable an instance in New York when I was there in 1881, that I am tempted to relate it to you.

By a trick played upon travellers, and well known in the commercial capital of the States, but at the time unknown to me, I was swindled by an individual whom I had once before seen in England. I obtained an introduction to the Chief of Police to aid me in obtaining restitution, and he referred me to the head of his detective department. This genial Irishman, for he was from the Green Isle, asked me to describe my man. I did so to the best of my ability. He then opened a revolving cabinet containing, if I remember rightly, some 1,600 photographs of persons leading a criminal life in New York, who had been in trouble, and were known to the police. After turning over several of the revolving leaves, he put his finger on a photograph and said "That's your man." I believed he was, so he telephoned for him, and at eight the same evening I saw and identified him, and the next morning full restitution was made to my great surprise and contentment.

The greatest puzzle in identification used to be, and probably still is in this country, the assumption of false names, in the multiplication of which the search through a large number of photographs is perfectly useless. This is said to have actually happened in Paris, when 100,000 photographs have been collected by the police. Photography, therefore is now relegated to a secondary position, and only used as an aid to identification established by other means.

The basis then of the anthropometric system is to obtain measurements of those osseous parts of the human body which undergo little or no change after maturity, and which can be measured with extreme accuracy, to within so small a figure as to be practically exact. These parts are the head, the foot, the middle finger, and the extended forearm from the elbow.

M. Bertillon commenced with a general explanation of the subject, and its special application to the identification of professional criminals, and the detection of the various means adopted to escape recognition. He then detailed his method of procedure, which is embodied in the record of the Municipal Statistics of Paris for 1887, from which I prefer taking it.

He then proceeded to describe the instruments used in the measurements, which will be performed presently.

In his concluding remarks on this head, he showed how rapidly the accumulation of proofs of identification progressed from small beginnings, so that up to August, 1887, 1,500 identifications had been established.

Upon the subject of measurements affording a more reliable

basis for identification than photography, the remarks of M. Bertillon are particularly valuable, and deserving of reproduction in his own words. The objection, he says, of the extension to the provinces of this method would be the great cost of organizing a photographic service similar to that of Paris, and he pointed out by what modification of details it could be dispensed with as an essential factor. He pointed out how a vast experience in human physiognomy is required to recognize in many of the photographs which he exhibited, that they are the likeness of the same man taken at different times. Nevertheless, he adds, that those photographs were all taken in the same studio, by the same photographers, with the same apparatus, and as nearly as possible at the same hour in the morning. How much more marked would the difference be, if all these conditions were materially altered.

In this sort of inquiry a photograph in profile is far better than one of full face. The outline of the forehead, the nose, and above all the ear, give an unalterable form. In some, every trace of resemblance had disappeared. Any change in the form of arranging the hair, beard, &c., complicates the matter in adults.

For this, however, the remedy is to place a piece of paper over the hair and beard in both cases, and you have the same face in both. The officials employed in searches, notwithstanding their dexterity, now make use of the figures alone, so that photography is now of hardly any use, and is only employed as a means of check.

Again, some who oppose being photographed, willingly allow themselves to be measured; but their refusal is disregarded. A card without the photograph is classed in the ordinary way, and the man is arrested and comes under another name; the measures are a guide to the card, instead of the photograph.

"We must bear in mind," he continues, "it is not a question of convicting a man because the size of his head, &c., is the same as that of another man. We are simply an office for information. We furnish a name, that is to say, a clue to the investigation. It is for the authority who tries the case to obtain all the further particulars necessary for the trial of the prisoner, in the usual manner. If the information thus provided by anthropometry is confirmed by such additional evidence, the result is absolute certainty for the ends of justice."

For our part, he continues, so certain are we of the correctness of our work, that we purposely refrain from communicating to the prisoners the discovery of their aliases. We only listen to what they say. The search is mostly made when they are not present.

The note containing the information regarding their antecedents, is sent direct from the department to the Juge d'Instruction, who thus makes use of the information regarding the antecedents of the accused, unknown to him, and it aids materially in his proceedings and decision.

At the time M. Bertillon wrote this, there had not been a single error in the 700 notices sent to the judicial courts.

M. Herbette, the General Director of the Prisons of France, from a knowledge of the working of the system, did not hesitate to introduce it in the whole of France, so successful had it proved.

More measurements might have been taken had it been considered necessary, as various other parts of the body would afford different measurements of similar character to those employed—such as the forearm, the length and width of the ear, the height of the bust, the length of all the fingers of the hand, &c.

But when the seven measurements in practice enabled 60,000 photographs to be reduced to series containing 10 in each, further sub-division certainly did not appear to be necessary, or worth the additional cost it would entail.

M. Alphonse Bertillon shows how the further sub-divisions may be obtained from the new measurements referred to above ; but nothing in reality can be gained by going beyond the results already obtained, which have proved sufficient for all practical purposes.

Great importance in France is attached in addition to distinctive marks on the person, which are recorded with great care to secure accuracy.

M. Bertillon again advocates classification by ages in decimal periods. He does not, however, himself believe that there is anything to be gained by increasing the number of measurements, or substituting fresh ones for those in use.

The objections to his system urged were also considered in his discourse. Most of these have been answered by the success of his plan, and he is of opinion that it is better to leave it to time, to show what indications may safely be omitted as having been proved to be defective or unnecessary. It is easy enough in such a classification as his to suppress or strike out of the forms in the collection any particulars found superfluous, whilst on the other hand it is manifestly impossible to add five or ten years afterwards additional particulars, when the subjects examined are far away.

The legal aspects of the question of compulsory measurements on untried persons in France, are also considered, but it is acknowledged by M. Bertillon that this must be governed in

every country by its own laws. French judicial proceedings are certainly by no means in accord with ours.

This is a part of the question which I am not qualified to consider, yet whatever will accelerate judicial proceedings in criminal matters appears to me to be deserving of the consideration of the judicial authorities, as well as of the legislature. It is abundantly evident from our police reports, and the constant recurrence of demands for further enquiries as to the personality and antecedents of persons brought before the courts, that some more certain and rapid means of identification are required, than those in use, and my belief is that the remedy will be found in the anthropometric method, or such modification of it as may be found consistent with our procedure in all such methods.

In conclusion M. Bertillon discussed the question of its prison and international relations, remarking, I think correctly, that the first step towards reforming a prisoner, rests on a knowledge of his antecedents. In prison, as in a court of justice, are we to treat the habitual criminal and he who has committed his first offence, in the same manner? The concealment of a man's identity entails again a prolongation of his detention before the determination of his case, as most offenders, whether old or new hands, are anxious to know the worst that can befall them as soon as possible, and where the law admits of it, prefer a summary trial to being relegated to the Sessions, not so much from fear of a more severe sentence, as of a wish to be done with it, even if there is a better chance of acquittal with the aid of a jury, and greater clemency of judges. This I was often told by European prisoners in India when released; and they came to me, as they generally did in the absence of any Prisoners' Aid Society, to assist them, either in making a fresh start, or in getting out of the country.

The extension of the method to other countries would aid materially in the detection and punishment of men of different nationalities, who in these days of rapid and cheap locomotion change their venue, and seek new fields in which they are unknown, for continuing their depredations. The remarkable disappearance of English pickpockets from Paris, where their measurements and photographs rendered them easy of recognition, is a striking proof of the advantage of the system. From what was told to me by men who had been imprisoned in England, and re-convicted in India, without any knowledge of their antecedents, some of the decrease in the number of criminals at home may possibly be accounted for.

Upon this point, M. Herbette, the Director of the Penitentiary Department of the Ministry of the Interior in France, remarked at the Congress in Rome, that "Crime becoming in a

certain way professional in the hands of certain individuals who know how to take advantage of the progress of our civilization to escape repression, it is natural that society should utilize the discoveries of science to thwart their devices. The practical application of M. Bertillon's method has entirely fulfilled the hopes inspired by the theory.

"In Paris, Versailles, Milan, Poissy, Lyons, &c., the process was at work in its integrity. A few days had sufficed to teach the warders. In the less important prisons, it is considered sufficient to note in the jailor's register, the cephalic diameters, the length of the middle and third fingers of the left hand and the left foot. These indications are found sufficient to baffle all attempts at falsification of identity. The executive of foreign countries would, on application, be furnished with all information and documents which could assist them in adopting the new method."

He then proceeded to indicate other conditions of life in which it could produce results of extreme value and importance, far beyond the pale of its application to the identification of criminals. But as these are all more or less speculative, it will, I think, be sufficient for the present to limit its application to the field in which it has been so eminently useful, until it has proved to us what it has demonstrated to our neighbours. We are an eminently practical people, although slow to adopt new ways, but we are not slow to see extensions of usefulness when satisfied of their value and applicability.

The Official Report of the Municipality of Paris on the Working of the System to the end of 1887.

History.—The anthropometric identification of criminals was inaugurated in the dépôt of the Prefecture of Police at the end of 1882 by Monsieur Camescasse, Prefect of Police, and the Secretary, General M. Val Durand, on the plan suggested by M. Alphonse Bertillon, and submitted to the Administration in 1879.

Since that time, thanks to the initiative of M. Herbet, Director of the Prison Administration of France, its extension to the rest of the country is in process of organization. Ministerial circulars to that effect were issued in November, 1885, and in April, 1888. They are appended to the report of the municipality under review.

Its immediate object was to facilitate the carrying out of the law of the 20th May, 1861, on serious crimes, by establishing a sure and rapid means of the personal identification of relapsed or habitual criminals, and thus to get rid of the constantly

increasing recourse to the assumption of other names of persons known to them, to evade the consequences of a répétition of convictions of crime.

Personnel.—The service of identification of convicts consists of two sections employing corresponding means of investigation : 1st, an anthropometric section, and 2nd, a photographic section. The establishment of each of these sections consists of eight agents, among whom are a brigadier-corporal on the permanent staff of public safety, with a chief inspector having authority over both departments, and a *chef de service* (clerk).

The functions of the anthropometric section are to take a certain number of measurements of osseous parts fixed upon, of persons both in the prisons and the dépôt—that is, before and after trial and conviction, and then, using the figures thus obtained as a basis, to class the photographs of those individuals in regular order, so as to render it possible to find easily afterwards, among hundreds of portraits, that of a relapsed criminal concealing his identity under a false name.

Explanation of the system.—Taking as a basis a collection of 60,000 photographs, they would be grouped as follows :—

Photographs of small heads	..	..	20,000
" " medium heads	..	..	20,000
" " large heads	..	..	20,000

Each of these three divisions of 20,000 would be redistributed, following the same principle, without any reference to the height, into three series, according to the size of the head of each, as follows :—

That of the small heads, 6,000 photographs, and something over.

That of the medium heads, 6,000 photographs, and something over.

That of the large heads, 6,000 photographs, and something over.

These sub-divisions of 6,000 will be divided into three groups, of the length of the middle finger of the left hand, and would then consist of—

Little middle fingers,	2,000 photographs.
Medium " " " "	
Large " " " "	

The length of the foot would furnish a fourth indication, which would divide each of the packets of the preceding photographs into series of 600, which can be reduced further into smaller elements based on the length of the forearm taken

from the elbow, the length of the little finger and of the ear, the colour of the eyes, and the height of the individual, &c.

Thus, by means of six new anthropometric data (the sex, height, age, and colour of the eyes, having long been in use), the collection of the 60,000 photographs of the Prefecture are ultimately divided into groups of ten, which can be run through rapidly.

It must be added that to maintain uniformity in the figures of such a system of classification in the first instance, and before any measurements are taken, a constantly recurring element is the presumed date of birth, within a limit of twenty years; here the individuals born from 1839 to 1849; next those born from 1850 to 1860, then 1870 to 1889, &c.

Suppose then, we have to verify in the collection, if an individual has not been previously classed under a different name. It is self-evident that, in consulting the division of length of head, corresponding to that of the person under examination, and in stopping in that division at the sub-division of this size of head, to seek afterwards the sub-division of his middle finger, then that of his foot, and that of his length of arm, we shall arrive, by elimination after elimination, at the final packet which ought to contain the photograph sought for—if it has previously been classed, be it understood.

When the figures taken are found to be on the boundaries of divisions, the examination must be made in the adjacent divisions. If several of the measurements are together upon the boundaries, we must take into account the multiple combinations to which such researches must give rise.

Anthropometric classification.—The qualifications—small, medium (mean), and great—of each successive elimination, are rigorously determined by figures. In order that the quotients thus obtained be approximately equal, it is absolutely necessary that the numerical limit of the category medium (or mean) should be more restricted than the categories small and great. Suppose, for example, we begin our eliminations with the height, the figure of middle height should contain all individuals of 1 m. 62, to 1 m. 67, whilst the great would extend from 1 m. 68, to the giant of two metres, and the small height to Lilliputians of 1 metre and a few centimetres.

The division of the binomial curves shows that to realize this condition in a general way, the limits of the medium category must not deviate above or below the arithmetic mean, beyond 63 hundredths of the probable error.

It is self-evident that the arithmetic mean of each measurement varies according to the branch (little, mean, or great) of the preceding measurements.

He then proceeds to explain the mode of arrangement of the photographs in the cupboards in triple divisions for readier reference and search; but, as it could scarcely be rendered intelligible without a diagram or a model, I do not reproduce it. It is extremely ingenious, and the plans would, I am sure, be readily supplied to any authority asking for it.

Photography.—The photographic proof added to these before-mentioned is a profile of the right side, and one of the full face slightly turned to the right, the two to an exact scale of one-seventh. The proceeding is now, however, considered of secondary importance, and is used only as a further test to secure absolute accuracy.

Particular marks.—All evidence of scars, moles, or characteristic indications of any kind are recorded on the backs of the photographs with anatomical precision as to their nature, dimensions, situation, &c. Much importance has always been attached to some of these.

Certainty of the process.—The three recognitory elements of identification, independent each of the other, are:—

1. Mensuration.
2. Photographs (profile or full face).
3. Record of cicatrices (scars).

When taken together they control the identity of an individual for many years with absolute certainty, to such an extent that the employés of this service, when they discover the real name of a culprit concealed under a false account of his civil status, are enjoined not to communicate this result to the offender, but to send the information direct to the proper judicial authority, who thus becomes forearmed as to the real identity of the person, without his knowledge.

On more than 2,300 recognitions thus furnished up to April, 1889, not one has led to confusion, which would at once have been made known, by the accused to the magistrate.

Operations effected.—The undermentioned figures being the annual total of individuals recognized to have been personally examined under another "*état civil*," show the constantly increasing extensions of the operations of this service.

Years.			Number of persons examined.			Number of relapses recognized under false names.
—			—			—
1882	..	..	225	..	..	—
1883	..	..	7,336	..	..	49
1884	..	..	10,308	..	..	241
1885	..	..	14,965	..	..	421
1886	..	..	15,703	..	..	352
1887	..	..	19,140	..	..	472
1888	..	..	31,849	..	..	615

The figures 31,849 in the year 1888 represent nearly the whole number of persons arrested during this period for offences under the common law, and having passed through the *dépôt*. The *personnel* actually assigned to the service allowed of the extension of the measurements to the 100 arrested, the average number passed through the *dépôt* every day.

To work rapidly requires that the measuring agent should have the aid of an assistant, to whom he could dictate the figures without leaving his measuring instruments.

Thus worked by two persons, the measuring of an individual takes two minutes, the examination of the cicatrices, or other marks, including tattooing, &c., three minutes, the inscription of the surname and *prenom* (Christian name), age, &c., on the declaration of the subject, two minutes. Total for the whole operation, seven minutes, or eight persons in an hour. If carried on without interruption from 9 a.m. to midday, two agents could complete 24 operations ($8 \times 3 = 24$).

Four squads of two agents were sufficient to complete 100 examinations before midday. It is necessary so as not to interfere with judicial proceedings that the examinations should be completed before the opening of the offices and the courts.

The afternoon is sufficient for the copying of the documents for all official purposes.

It is stated that the habitual offenders have learnt by their personal experience or by the prison talk, that the time for aliases has passed away. Now-a-days it often happens that those confined under false names and measured previously, correct their civil status of their own accord, when they find they are to be taken to the measuring room. It has likewise appeared to us to be useful to add to the descriptive roll for the special registration of this kind of rectification:—*Individuals recognized to have been previously measured under the same name.* This number actually exceeds those identified by other means. Prevention is better than repression.

It is also found better to postpone the examination to the day after incarceration, that they may have a night for reflection on their position, and to recast their identity to the registry office of the *dépôt*, should they be so disposed.

So that it may be said that the forty recognitions made every month by the identification department could not have been made by another procedure, and they correspond to the number of individuals who, before the establishment of the system, succeeded in passing before the tribunal under their false *état civil* (default made of rectifications which have always been raised by the magistrate's instructors, but enquiries of this

nature could not be made anteriorly without cost, and without prolonging considerably the time of enquiry).

Another proof of the efficacy of the system of anthropometry is the complete disappearance of dissimulation of identities in the prisons, other than the *dépôt*, so that whilst in 1884 and 1885, the number of recognitions made in the prison *after conviction*, amounted to 200 or 300 a year, the number of cases of this class in the whole year 1888 was fourteen, of whom ten were of individuals who never having been measured before, were of necessity not recognisable by the service. This leaves four omissions to be distributed among the 31,000 examined in the year.

Motives for change of name.—These among professional or habitual criminals are usually taken to avoid increased severity of sentence on conviction, and in France by deserters from the army or refractory soldiers, who, arrested for a trifling offence, are particularly anxious not to be made over to the military authorities.

The equivalence of recognition on the ground of general interest, is that the arrest of deserters, escaped prisoners, persons convicted by default, is as useful as would be the direct arrest of any of the classes above-mentioned.

The category of evil-doers who most frequently resort to aliases are those most given to indulging in changing of names. In the front rank must be placed the professional thieves of the Anglo-Saxon race, known as pick-pockets. All the individuals of this species, without exception, who have been measured by the department who have since returned, thought it expedient to change their first status: a remarkable result is the number of this sort of thieves has increasingly diminished since the creation of the service of identification; from 65 in 1885, it fell to 52 in 1886, to 34 in 1887, and to 19 in 1888. Having assured themselves that it was impossible for them to conceal their antecedents on arrest, they prefer now, according to their own avowal, new pastures in foreign capitals. [Some of you may remember the amusing examples of pocket-picking in Paris, given by Bulwer Lytton in his novel of "Pelham." The Celts are clumsy apprentices, the Anglo-Saxon past masters in that craft. It also reminds one of the inimitable portraiture by Dickens of the renowned Fagin.]

Sometimes names are changed to prevent disgrace falling upon the family. I was acquainted with many such cases in Calcutta, particularly the poor fellows who died in my hospital, and wished me to communicate their deaths to their families.

The remainder of the official report from which I have

borrowed all the particulars above noted is devoted to the consequences possible upon the generalisation of the system.

In introducing his remarks on the tables Dr. Jacques Bertillon mentions that, before anthropometry was applied to police purposes, it had been utilized in the solutions of some of the problems which belong as much to mathematics as to natural history.

The Anthropological School in Paris, founded by his father and Professors Quatrefages and Broca, as I have already remarked (for they were all known to me personally) extolled it as a valuable means of investigation in studies of the races of mankind, of the hygiene of infancy, &c. The new theories of the Italian criminalists are, in many points, based on osteometric observations.

These considerations have induced me to summarise in the appended tables the anthropometric documents accumulated in the archives of the service of identification.

We hope they will furnish anthropologists interested in these questions with facts of undisputable accuracy. To this advantage will be added that of furnishing the elements of the mathematical theory of the anthropometrical method, and show on what data we work.

The tables, five in number, are the outcome of the observation of 8,365 persons born in Paris. There is thus, as far as possible, unity of origin. I could scarcely explain the exact nature of these tables intelligibly, but I venture to suggest that they may be published in the Transactions of the Institute should they be deemed fit.*

Conclusion.—I have now placed before you, *tant bien que mal*, I hope an intelligible account of the anthropometric method of identification of criminals, which has now been in use in France for several years, is extended to the whole of that great country, has already been applied to many thousands of persons, and in the 2,300 cases in which efforts at concealment were made, with all the proverbial cunning of the criminal classes, has stripped off the mask of imposture without a single failure. The method is simple, easily learnt and easily applied, can be accomplished with the intelligent agency always at the command of prison and police authorities, and by the facility and rapidity with which its results can be made available for use when needed, prevents the vast accumulations of the materials of identification from overwhelming the searches of records, in a manner never yet accomplished by any other method employed. It dispenses effectually with errors of observation, treachery of memory, the unavoidable fallibility of human testimony, even

* The tables are omitted, as they were too voluminous.

when honestly given, and employs strictly scientific methods, devoid of all cruelty, humiliation, and even harshness. The testimony of those parts of the human organization, which are most permanent in their character, and cannot be falsified or changed by any devices of the offender, is surely an unmixed gain to civilisation, and among the most effectual checks to the adoption of a career of crime, as it is the certainty of detection, rather than severity of sentence, which most deters the habitual offenders.

That well-known humorist, and singularly keen and accurate observer, the late Sidney Smith, in speaking of crime and criminals, declared the most vulnerable part of a thief to be his belly. Had he been alive now, I think he would have changed his view, and declared that the most honest part of a thief, or a rogue of any category, was his bones, for he could by no ingenuity however subtle, cause them to lie, when the truth of his identity was in question, and was of use to the cause of justice in dealing with him.

DISCUSSION.

Sir RAWSON RAWSON, after Dr. Bertillon's demonstration, expressed his appreciation of the very interesting communication which had been made to the Anthropological Institute, and referred to the trouble which Dr. Bertillon had taken in coming over from Paris expressly to attend the meeting. He remarked that Dr. Bertillon only arrived in London at 6 p.m. that evening, and that he had scarcely recovered the stability of a philosopher after a rough sea voyage, when he delivered his address.

Dr. Bertillon had mentioned that the speaker had had an opportunity of personally testing the practical use of the method at the general meeting of the International Statistical Institute, held at Paris last year. A brief description of Sir Rawson Rawson's experience on that occasion might be of interest to the meeting.

One afternoon the Institute adjourned to the Palais de Justice, where, under the conduct of Dr. Bertillon, a prisoner was brought in who had been arrested on the previous day. He had given a false name, and declared that he had not been previously in the hands of the police. In our presence, said Sir Rawson, a prison warder took the several measurements already demonstrated by M. Bertillon. This occupied five or six minutes. I was then taken into the adjoining chamber, in which the cards containing the record of the 100,000 prisoners already measured were arranged in drawers and sub-divisions in the manner described. In the first I found a tray of cards in which the two principal measurements agreed; they were very numerous. Under that was a tray in which a third measurement agreed; they were less

numerous. I then saw trays in which a fourth and fifth measurement agreed, and either in the fifth or sixth, in which the number had become quite small, ten or twelve. I found one in which that large number of agreements was observable, and on the reverse were the photographs—full face and profile—by which the identification of the prisoner was completed. On being shown the photograph he acknowledged its identity, and gave his real name. On referring to his prison record, M. Bertillon showed that he was an old offender in another sphere of criminality.

My examination of the cards occupied even less time than the measurement of the individual.

Sir Rawson Rawson, in conclusion, expressed his belief that the method recommended by M. Bertillon was both easy and effective, and that it might be introduced with great advantage in the United Kingdom.

Mr. FRANCIS GALTON remarked that it was gratifying to learn from the interesting account they had just heard that the Bertillon system had stood the test of experience so well that its application was extending; also that the variety of features found suitable for measurement or for description was continually increasing. Its growing importance in France, its employment, as we were now informed, in the United States, and even, as he believed, in the Argentine Republic, were evidences of its extension. The investigation of the callosities acquired by artisans in the practice of their several labours, and the marks left on their hands by the tools they habitually used, were instances of recent additions to its processes. There may be room for reasonable doubt among anthropologists whether the precision with which the living body can be measured is quite as great, and whether its dimensions are quite as permanent as they are considered to be by M. Bertillon; and again there may be some hesitation in believing that a very large collection of measures would admit of being so surely catalogued on the Bertillon system as to be ransacked with a promptitude at all corresponding to that with which a word may be found in a huge dictionary. Nevertheless there can be no doubt as to the truth of the main ideas upon which the system is founded, namely, that individuals differ largely and for long periods of their lives, in very many separate particulars, some of which admit of direct measurement, and others of being described, with a considerable degree of accuracy, and that these measures and descriptions admit of being catalogued and classified by the ingenious Bertillon system in a way that vastly diminishes the labour of search for any particular set of measurements; also, that the anthropometric system adds vastly to the precision with which the identification of a person may be established.

MAY 13TH, 1890.

J. G. GARSON, Esq., M.D., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the following gentlemen was announced :—

STANLEY EDWARDS, Esq., F.Z.S., F.R.G.S., F.E.S., of Kidbrooke Lodge, Blackheath.

W. SCOTT LANE, Esq., M.D., of the Royal College of Surgeons, Edinburgh.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From DR. F. J. MOUAT.—H. Busch's Journal of a Cruise amongst the Nicobar Islands.

From the U.S. GEOLOGICAL SURVEY.—Seventh Annual Report, 1885-86,

From BARON A. VON HÜGEL.—The Nanga of Viti-Levu. By Mr. Adolph B. Joske, Fiji. With Plate xvii. Note by Baron von Hügel.

From the AUTHOR.—Notes on the Pearl and Chank Fisheries and Marine Fauna of the Gulf of Manaar. By Edgar Thurston, C.M.Z.S.

From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. xi. No. 6.

From the ESSEX FIELD CLUB.—The Essex Naturalist. Nos. 10-12. Vol. iii. Nos. 1-3. Vol. iv.

From the INSTITUTE.—Proceedings and Transactions of the Nova Scotian Institute of Natural Science. Vol. vii. Part iii.

From the ANTHROPOLOGICAL SOCIETY OF WASHINGTON.—The American Anthropologist. Vol. iii. No. 1.

From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. No. 5.

From the YORKSHIRE PHILOSOPHICAL SOCIETY.—Annual Report. 1889.

From the SOCIETY.—Proceedings of the Society of Biblical Archæology. Vol. xii. Part 6.

— Proceedings of the Royal Geographical Society. Vol. xii. No. 5.

— Proceedings of the Royal Society. Vol. xlvii. No. 288.

— Journal of the Society of Arts. Nos. 1953-55.

— Société de Borda, Dax ; Janvier-Mars.

From the SOCIETY.—Mittheilungen der kais. königl. Geographischen Gesellschaft in Wien. 1889.

From the EDITOR.—The American Antiquarian and Oriental Journal. Vol. xii. No. 2.

— Science. Nos. 376, 377.

— Revue Scientifique. Tome xlv. Nos. 17-19.

— Bullettino di Paletnologia Italiana. Tomo vi. Nos. 1, 2.

MR. G. F. LAWRENCE exhibited two human skulls recently dredged up from the bed of the Thames.

MR. A. P. GOODWIN exhibited some fire-sticks from New Guinea, and made some observations on the Natives encountered on Sir William MacGregor's expedition to Mount Owen Stanley.

MR. FRANCIS GALTON exhibited a new instrument for measuring the rate of movement of the various limbs, and read the following note:—

*A NEW INSTRUMENT for measuring the RATE of MOVEMENT
of the various LIMBS.*

By FRANCIS GALTON, F.R.S.,

Vice-President Anthropological Institute.

[WITH ZINCOGRAPH.]

DIFFICULTY has been found in making courses of experiment on the rates of muscular movement in different persons. This is partly due to the tedium of observing with a blackened cylinder and a vibrating tuning fork, or with a broken electrical current and a Hipp's chronograph, or other apparatus of the kind. More especially is it due to the violence and to the somewhat uncertain direction of the movements to be measured.

In the laboratory that I set up in 1884 in the International Health Exhibition, the instrument used for the purpose was a stout sliding bar, struck forward by the fist. As soon as it started, it released a fixed spring that had been deflected to one side, and which thenceforward vibrated across the bar. A pencil attached to the free end of the spring, left a sinuous trace on the bar, and the number of bends in the trace in any space was proportionate to the time taken by the bar to travel through that space. By using an appropriate scale the absolute mean velocity during any given period was easily read off.

But it proved that few persons delivered their blow in a straight-forward manner. They usually struck the deal bar to one side and often broke the apparatus, and when I replaced it with a bar of harder wood, they still broke it, and hurt themselves rather severely at the same time. Experience showed the necessity of eliminating this difficulty and danger. Whatever may be the violence or the direction of the blow, the recording apparatus should be safe, and the person tested should be unable to injure himself.

The method adopted in the present design is perhaps most simply explained by referring to the action of a spring measuring tape. When the end of one of these is pulled out and then let go, it springs sharply back, the tape running cleanly through a slit. Suppose for a moment that it runs back more quickly than the hand could follow it, then, if the end of the tape is retained in the hand that gives the blow, the tape will run through the slit at the exact rate at which the blow is given. It cannot go quicker, because the hand retards it; it will not go slower, because the spring urges it on. The hand need not be near to the tape; it may be connected with it by a long thread, and the action of the apparatus will remain unaltered. The instrument then would be quite out of reach of harm. In this way, a violent movement full of danger to most instruments is translated into a swift movement of a mere thread, running smoothly between eye holes in a straight line.

Having thus got a thread moving smoothly with the same velocity as the arm, the next question is how to measure that velocity. I do it by gravity. The thread during part of its course is arranged to travel vertically, and passes through a small inverted cone, to which it is fixed. The thread then passes loosely through a cylindrical bead of white ivory, whose bottom rests on the face of the cone. When the moving thread is suddenly arrested, the bead is tossed up to a height dependent on the velocity of the thread at the time when it was arrested. The momentary pause of the white bead, after it ceases to ascend and before it begins to descend, enables the height it has attained to be easily read off, upon an appropriate scale, which tells at how many feet per second the string was moving at the instant before it was checked.

The instrument that I show has worked well, but doubtless admits of much improvement in detail. It is exhibited in its present early stage for the benefit of criticism and suggestions.

The proportions of the instrument have been guided by the fact that the issuing thread must be at about the level of the shoulder, and that the scale must be opposite to the eye of the experimenter. It was also thought best to arrange the scale so

as to show velocities between, about 5 feet and 30 feet per second. To do this, and at the same time to keep the scale of a convenient size, the velocity of the bead must be mechanically reduced to a fraction of that of the free end of the string. In my instrument I have reduced it to one-third. This being premised, the principle of the machine is here shown in diagrammatic form. In the actual machine there are some differences of detail, and an adjustment is added for readily bringing the bead to the zero position, when the machine is at rest. A piece of thin pianoforte wire is interpolated for the bead to run on, and the check is given by a small india-rubber ball on the string striking home against a fixed cork buffer. It is not of the least consequence that the check should be sharp; all that is necessary is that its motion should *begin* to be checked when the bead is at zero. Then the bead leaves the cone, and henceforward behaves as a free projectile.

We must satisfy ourselves that the spring can pull the thread more quickly than the arm can follow. This is easily done by seeing that the ball is tossed up considerably higher, when the string is allowed to run home unrestrained, than it does when it is held in the hand that delivers the blow.

I find considerable regularity in the readings, when the conditions under which the blow is delivered are similar, but a small alteration in those conditions may make a considerable alteration in the results. It is remarkable how greatly a movement of the wrist may increase the velocity of the hand. We see an effect of this kind in a thrown ball, which travels vastly quicker than the wrist of the hand that throws it. The question of the best measures to take, and the best conditions under which to take them, deserves careful consideration, and I should be grateful for suggestions. One good test position seems to be, to stand behind, and slightly pressing against a horizontal bar that lies lower than the elbow, to plant the feet in chalked spaces, the left foot parallel to the bar, and the right foot pointing to the front, then reaching forward as far as the bar conveniently permits, to seize the tightened string and to draw it back to the vertical post to which the bar is fixed, and from that position to deliver the blow.

For calculating the scale, let v = the velocity of the cone in feet per second at the moment before it is checked at the zero point, and s = the height in inches to which the bead will be tossed, then $s = v^2 \times 0.186$ inches. By giving successive values to v the scale is easily calculated. As in my instrument v is only one-third of the velocity of the arm, we have to calculate for values of $v = \frac{10}{3}$ feet per second, $\frac{11}{3}$ feet per second, &c., in order to find the height to which the bead will be tossed, when

the velocity of the arm is 10, 11, &c., feet per second, and these latter figures must be inscribed as the calculated heights. The actual velocity of a blow being taken at 20 feet per second, the difference on the scale between it and 21 feet per second, is then the difference between 8.28 inches and 9.13 inches, or nearly an inch, an ample and convenient interval. For calculating according to this scale, if w = the velocity of the arm, $s = w^2 \times 0.0207$.

I had hoped to have given more definite results in this paper, but accidental delays in the completion of some carpenter's work have prevented me. Perhaps I may be allowed to add a foot-note before these notes are printed, if there be time and opportunity to do so.

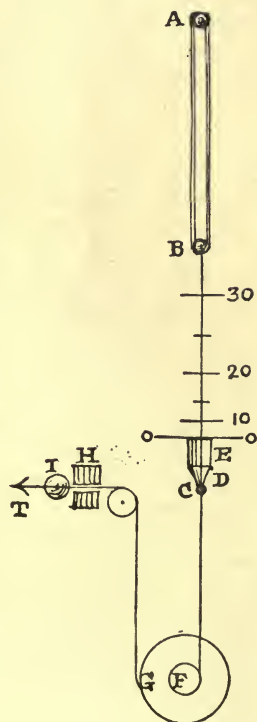
Description of the Figure.

AB. A stretched india-rubber band.

BC. Thin steel wire, upon which the ivory cylinder E runs loosely like a bead. The end of BC passes through an inverted cone D, into which it is fixed.

F, G. Are two grooved wheels fixed together, and turning freely on a common fixed axis. The diameter of F is one-third that of G. A thread passing from C is wrapped a few times round E, to which its other end is fixed. Another thread fixed to F is wrapped a few times round F, and is then carried, first vertically upwards, and afterwards horizontally, by passing over a grooved wheel. It then passes through a hole in a fixed buffer H. On the other side of H it passes through, and is attached to a small india-rubber ball I.

When the machine is at rest the tension of AB causes I to be pressed home against H. When T is drawn out, AB stretches further, D descends, and the cylinder E descends with it. On delivering a blow with the hand that holds the free end of T, C ascends up to the point at which



the top of E is brought level with the zero line. There C stops, owing to I coming in contact with the buffers H. Consequently the ivory cylinder E is tossed up as a free projectile, and the graduation to which it ascends is noted. The number attached to that graduation shows the number of feet per second at which T was moving immediately before its motion was checked.

NOTE, OCTOBER 17.—The instrument has worked regularly at my laboratory after a little experience had suggested some minor amendments in detail. The chief of these was to greatly lengthen the elastic band, by passing it over a pulley at the top and bringing it thence downwards to the bottom of the frame. This greatly increased the uniformity of the strain and it makes the action very smooth.

The person experimented on stands with his back to a wall and strikes at the end of a long feather so placed that when the fist reaches the feather the india-rubber ball strikes the buffer. Care is taken that the wrist does not bend. I have not as yet worked up the results. The machine was made for me by Groves, 89, Bolsover Street, W. F. G.

Dr. G. W. LEITNER delivered a verbal address, of which the following is an abstract by Mr. A. L. Lewis :—

On the ETHNOGRAPHICAL BASIS of LANGUAGE, with special reference to the CUSTOMS and LANGUAGE of HUNZA.

By Dr. G. W. LEITNER, Ph.D., LL.D., &c.

Dr. LEITNER, in commencing his address, referred to his communications to the Anthropological Society in 1869, respecting the first results of his enquiries in Badakhshan, and to the Ethnological Society in 1870, when he brought to the meeting his Yarkandi, Niaz Muhammed ; and also to his communication to the Anthropological Institute in 1874, when he introduced to it Jamshêd, the first Siah Posh Kafir, a supposed blue-eyed descendant of the Macedonian colonists in the Hindukush, who had visited this country, and who, having since been sent back to his own country, had returned to Europe, and had died fighting against the Russians in the Herzegovina. The speaker said that he had wished to introduce on the present occasion a member of

another race of Dardistan, a Hunza man, but was unable to do so in consequence of his being too much of a savage. The *Illustrated News* had given a picture of him in front of the mosque which the author was building at Woking. There was no chance of making him a really good Muhamedan (the only religion of which he might be got to form a conception); he had been engaged in kidnapping people, but as there was nobody here for him to kidnap, he had become very unhappy, and Dr. Leitner thought it a good riddance when he wanted to go on a pilgrimage to Kerbelá.

The subject immediately before the meeting was one of very great importance. The author had pointed out at a previous meeting that the time was long past when grammatical rules and laws were solely to guide them in the study of language, and that, as the East was brought nearer to them, it would force upon them more and more the necessity of treating languages as living and not as mummies; some reputations might suffer in consequence, and great men who now talked of fifty languages might have to be content with knowing one; but it was very necessary that a study of the customs, history, and associations of races should accompany the study of their languages. In the Hunza language especially, which some had thought to be a remnant of a prehistoric language—the formation of words ran concurrently with some of the earliest conceptions and simplest relationships; how far this would upset or support the theories of Indo-Germanic, or Turanian, or Slavonian cradle-lands, it was impossible to say at present. When Dr. Leitner first brought the materials of the Hunza language home he was told by Professor Weber that he had not shown that it was of earlier date than Sanskrit; he was very sorry for it, but the language could only be what it actually was, and he thought there ought to be a division of labour between those who collected facts and those who speculated on them, and that it was for the Germans, who had elaborated so many conjectures, to elaborate one regarding the Hunza language. Something had indeed been recently elaborated at Munich, but it was a curious instance of learning apart from facts. Dr. Leitner's great aim was to show what a language really was, for there were plenty of scholars in Europe who could point out what it ought to be. Real discovery was to find what existed or was done in a particular place, and to bring back a report of it without favour to any particular school, and to place it before that small part of the public which took an interest in the question. They had an instance in the Hunza of the growth of simple sounds into what in Aryan philology were called roots. If he might borrow an illustration from the English or French he would say that, if they had a

word like "mother," *m* would mean the female element, *o* would be the self, and *ther* would mean the tribe, indicating a state of endogamy in which all grown up females were considered to be mothers, and all grown up men fathers of the tribe. In the same way, sounds indicated a number of customs in that particular race, but of course it was when similar principles were applied to cases nearer home that the results were most startling. Thus, in French, "parents" meant father and mother, and also relatives, just as in Hunza all female relatives were mothers, and all mature men fathers of the tribe. If he were asked what had been done during the years that the subject had been under research since he first brought it before them in 1869, he would say the net result had been favourable to this country, in so far that those countries to which even the collective name of "Dardistan" had then to be given by him, were now brought under British influence. The rulers of those countries were very favourable to him personally, and had welcomed other travellers on his account. It is true, one traveller, Mr. Hayward, was killed, but that was because the Government had neglected the information Dr. Leitner had given, warning him against a certain chief; but, on the whole, these tribes, which had falsely been said to be cannibals, had given a friendly reception to a Government Mission that had followed in Dr. Leitner's footsteps twenty years later, and had followed his advice regarding the spiritual chief of the Hunza sect, who, curiously enough, resided at Bombay. The Dard races were now largely under our influence, and he hoped we should be content with that, because absorption would emasculate them, and render them incapable of defending themselves against Russia, while, if Russia were now to occupy their country, or if we were to attempt to divide it between ourselves and Russia, the resistance offered would be equal to that offered by the Circassians.

In opening up the country to British influence, Dr. Leitner said he had not done so with the view to encourage trade; indeed he had not even mentioned where gold was to be found. The Buddhists thought that the best place for gold was under the earth, because when it was brought to the surface it let loose a lot of bad passions, and therefore the Tibetans were anxious to keep us away. Leaving aside mining or washing for gold, there was no specialist of any kind who would not be rewarded if he turned his attention to the Hindukush.

Returning to the Hunzas, there was one thing which was not common further south—the great influence women had in determining their policy. The Rajah, being supposed to be heaven-born, none but an inspired woman dare tell him the truth. These women would get in a state of ecstasy, and recount

the glories, such as they were, of the past, and prophesy as to the future, and nothing was undertaken without them. If time had permitted Dr. Leitner to go into details, the members of the Institute would be astonished to find how many of Grimm's "Fairy Tales" were translated into daily life in Hunza; but it was none the better for that. There was constant drunkenness even in the mosques, and from the parricides and fratricides that went on, it seemed very awkward to be a relative of anybody there; in fact, it was extremely awkward to be there at all; but for all that, it was a very interesting country, and would amply reward the attention of any member of the Institute. They had a book, of which a Chief had given him a few pages; it was a kind of mystic poetry in a quaint Persian style—so far as the contents were concerned very like some of the writings of the Druses of the Lebanon. The Druses had a sacred covenant of a most unholy nature, not with the deity, but with Hakim, the mad Fatimite ruler of Egypt. The Hunzas one with their "Lord of the Universe," the lineal descendant of the 7th Imam, who lived in Bombay. It was very singular there should be this coincidence between these two peoples. The fundamental idea of both these covenants was the belief in transmigration—that all life is one, and cannot be divided, and that it depends on the character and the predominant elements in a person whether in his future lot he shall return to one element rather than another. These affirmative propositions were, however, framed in such a manner as to make it appear that they simultaneously denied them, for they say, "if you are asked a question of the folly (of religion), reply in this manner," as if saying even so much ought not to be revealed to the uninitiated.

The points that would particularly commend themselves to the Institute that evening were that the study of language could not henceforth be dissociated from the customs, antecedents, and associations, the natural phenomena surrounding, and the history of, the people speaking it. Even with highly civilized languages like Arabic this was the case, for that language had a great number of plurals expressing different circumstances, as, for instance, with regard to camels, whether they were straggling in a line, or were gathered in a circle round a tent, &c. It was better, therefore, to learn the customs of a people, and thereby to gain a knowledge of the language, which would be lasting, because based on living associations, than to learn the language simply as a matter of memory. Professor Max Müller had said the other day that he thought no man could speak more than two or three languages perfectly; this was true, and yet untrue. Those who studied in the way he (Dr. Leitner) had indicated, would find that they could exchange thoughts with others in

many languages, but those who only dabbled in two or three languages did not really know one, nor would they know all the technical terms of one, and, in any case, would be unable to communicate thoughts if they had not the thoughts themselves; therefore the statement he had referred to was partly true and also partly untrue. It was possible to learn a great number of languages if they would emancipate themselves from the tyranny of the present philological school, but they must be studied as living languages, along with the customs of those who spoke them, and not as if they were mummies.

He had taken the liberty of analyzing the Arabic and Sanskrit of our great scholars, and found them very unlike the Arabic and Sanskrit spoken by those who had the living traditions. The East was coming too near to be played with, and it was to the study of it that he would particularly desire the Anthropological Institute to address its attention; it was upon the lines he had indicated that, while availing themselves of all the treasures of the existing schools, the greatest discoveries would yet be made, and on those lines he hoped to become, in conjunction and in co-operation with the members of the Institute, he would not say a perfect scholar, but a more successful student.

DISCUSSION.

Mr. HYDE CLARKE, who was unable to be present, wrote as follows:—I was very sorry not to be able to attend the discussion on Dr. Leitner's discourse. It is now about twenty years since I first discussed the subject of these interesting regions with Professor Leitner, and I know that he has continuously and laboriously pursued his researches. One point of contact was with regard to Khajunah, on which he had accepted from Dr. Latham a statement at p. 250 of the "Elements of Comparative Philology," of the juxtaposition of Khajunah with Shina and Arniya. I directed his attention to the true philological interest of Khajunah. On remonstrating with Dr. Latham on his representations, he made the excuse for this and other examples of carelessness that this book, and not this alone, was "a pot-boiler." This book is, however, a remarkable work of labour and of reference, even to this day, but Latham, with great abilities, was little careful of literary obligations. His edition of the "Germania" of Tacitus is really a transposition of the materials of Zeuss in his "Germania." He had no true eye for language, as anyone can see in the instance of p. 250, and like many men he was a philologist of the eye, and not of the tongue and ear. This marks the contrast with Dr. Leitner, who has not only the book knowledge of scholastic learning, but the genuine power of a great linguist in acquiring languages from the living sources. As he unites with this the knowledge and

capacity for studying the anthropological relations, his labours in the Himalayas, of which those with regard to Hunza now referred to are only a portion, are of the greatest importance. Thus his are not only observations, but discoveries, and it is earnestly to be wished that he may pursue his investigations to the full. Availing himself of the peculiar frontiers for such studies as Lahore, like Cardinal Mezzofanti did of the College of the Propaganda at Rome, Professor Leitner has passed under observation the languages and idioms, the jargons and dialects of trades and of wandering tribes in India and the Himalayas, to the great profit of science and the great benefit of our Government. He was in India a centre of constant reference. Once, when ill in bed at Lahore with fever, a chief of police brought, under orders from the Government, five men before him in custody, whom it was desired to identify, as they were suspected of being Russian spies. Having caused them to be released and seated round his bed, and given them refreshments, he proceeded to converse with them, and to establish some basis of confidence. Two of the strangers knew a little Persian, which made a rude channel of communication. They stated that they were Mussulmans, who had been taken by the Russians on the capitulation of Kars, transported to Siberia and kept in captivity for many years, until they had made their escape to Afghanistan after great difficulty. He then proceeded in an endeavour to identify them, and asked them as to their habitations and language, and they stated they were Lesghians of the Caucasus. Fortunately, Dr. Leitner remembered a paper of mine before the Anthropological Institute, in which Lesghian was referred to, and which enabled him to test their statements. On his recommendation the wanderers were passed on by the Government to Bombay, and so as near to their country as it was possible to proceed, joining probably Caucasian refugees in Turkey in Asia. Few are able to understand and to appreciate the scene of Dr. Leitner's labours, and the nature and value of them. Our general conceptions of a region in ancient times, and in the present day, is that it is an area chiefly of one dominant language. Caucasasia with its many languages appears to us to be an exception; in fact, it is not so, but the Himalayas are under these conditions, and many parts of the world. Such indeed was the primitive nature of these continents before the great epoch in history of the invasions of the Semitic languages, and of the Indo-European, which ate up and swallowed the mass and variety of the indigenous languages and dialects. Hence the necessity of these investigations of Dr. Leitner for ascertaining the real nature of the Himalayan linguistics, and their relation to the origins of Aryan. If what he has done for the dead languages particularly touches this subject, no less pertinent are observations on the Turanian languages of the mountain mass, made known to us by the assiduous work of Brian H. Hodgson and others. Schoolmen have facile methods of determining the origins of the Aryans and their languages, and some of the Sanskritists have favoured us with an imaginary

aboriginal Sanskrit. Their doctrines do not supply us with an explanation of the rude and outlying languages of Kaffirstan, Dardistan, Afghanistan, Armenia, Albania, &c. The present state of affairs has led to a revolt against the domination of the Sanskritists in Germany by the new school of philology, under Professor Carl Abel and others, and an attempt by seceders from the sect of Sanskritists to change the *habitat* of the primitive Aryans from the Himalayas and Central Asia to low lands on the Baltic, suitable for the beech and birch. The conditions of the ethnographic and the linguistic problems are very complicated, and they require for their solution the labour of many men like Professor Leitner. In the Himalayas, as stated in a paper on the "Himalayan Origin of the Magyars," before this Institute, I attempted to establish relations of the Magyars, and of tribes, who co-operated with the Germanic and Magyar invaders of Western Europe, historical incidents, which are not exceptional in ethnographical annals, but not sufficiently studied.

Dr. LEITNER, in reply to observations made, said he had at first thought the Hunza language was Turanian, though that term was very vague, and was made to include all languages they knew nothing about, but he now, on further analysis of it, thought it might be taken to be the language out of which the earliest Sanskrit may have diverged. There was, however, a great difficulty in finding out the meanings of words, as "*ák*" would mean my name, "*guk*" thy name, and "*ik*" his name, while the consonant without the vowel had no meaning at all, so that the pronoun was mixed up with the substantive in such a manner that the substantive, relating to a person, had no separate existence, and this was also the case with the prepositions. "His finger" and "my finger" would be different words, and to follow up the language required a process of dissociation which was very difficult; but what did it lead to? They had reached a language in which a number of simple sounds stood for a number of relationships—the female relationship in various gradations and other personal relationships being represented by simple sounds. It was very difficult to say whether this was a Turanian language, but he thought it would turn out to be the language from which the Aryan languages had differentiated.

On Some BORNEO TRAPS.

By SYDNEY B. J. SKERTCHLY, F.G.S., M.A.I., &c.

[WITH PLATES IV TO X.]

[Read February 25th, 1890.]

THE following descriptions were written and the accompanying sketches made in the jungle of North Borneo. The traps were made for me by my own Dyaks, some for the purpose of illustration, some for the purpose of filling our scant larder.

The words, whether Dyak or Malay, are spelt phonetically, and the meaning given whenever it is known to me.

I. The *Jerat*. (Plates IV and V.)

The *Jerat*, Figs. 1 and 2, is a spring and noose trap of universal use amongst Dyaks and Malays in the forest. The word *jerat* with slight modifications is known far and wide through the archipelago, thus:—

The Malay and Dyak is *jerat*.

„ Sunda	„ <i>jiret</i> .
„ Batavian	„ <i>jirat</i> .
„ Tagala	„ <i>dalat</i> .

The Dyaks also call this trap *penjuk*.

The word *jerat* means literally a running noose, and the full name of the trap would be *jerat burung* = bird noose, or *perangkap jerat burung* = trap-noose-bird.

The *jerat* consists of the following parts:—

Fig. 2. a. The *Tidat* or trigger.
 b. The *Bunkang*, or hoop.
 c. The *Peningkas*, or catch.
 d. The *Ambar*, or noose-cord.

Fig. 1. e. The *Pantar*, or platform.
 f, f. The *Liar*, or guard-sticks.
 g. The *Baur*, or spring.
 h. The *Sabar* or *Pagar*, or fence.

The *Bunkang* or hoop (Malay, Jav., Sund., *benkang*, curved) is of pliable wood, about the thickness of a lead pencil, and the size of a croquet hoop. It is firmly fixed in the ground.

The *Tidat*, or trigger, is a small stick about three inches long. Its upper end is tied to the cord or *ambar* about two feet from the noose-end.

The *Peningkas*, or catch, is simply a stick rather longer than the width of the *bunkang*, or hoop.

The *Ambar*, or noose-cord, is of twisted bark, or, where obtainable, of stout string, the noose being a variety of running bowline. This is the real *jerat*. The word *ambar* may, perhaps, be allied to *ambur*, *hambur*, spread, but this is doubtful, as *ambur* means rather to spread about as in sowing rice, than to spread wide open.

The *Pantar*, or platform (? Malay *pantat*, a base or bottom), consists of four or five straight sticks about nine inches long.

The *Liar* are only sticks placed on each side of the *bunkang*, or hoop, to protect it.

The *Baur*, or spring, is a flexible stick which acts exactly like the stick in a common mole-trap.

The *Pagar*, or fence, is rapidly made by cutting branches, sticking them in the ground at an angle, and bending them so as to roughly catch. It is only made about eighteen inches high.

Jerats were always used by me in preference to other traps for catching argus and other pheasants and jungle fowl.

A place is sought showing the beaten tracks of the birds, and a long *pagar* is erected, right across a valley for instance. Openings for *jerats* are left every twenty yards or so, and *jerats* are also placed across every bird track.

The *jerat* being made it is set as follows :—

The *baur*, or spring, is bent down, and the *tidat*, or trigger, passed over the *bunkang*, or hoop, the head of the trigger catching the back of the hoop. At the same time the *peningkas*, or catch, is slipped under the *tidat* and the *baur* released. The trigger is now set. The *liar* are now placed, one end on the ground, the other on the *peningkas*, and on the platform so formed the *ambar* or noose is spread, and then concealed by a few leaves.

The *pagar* is so slight that a bird could easily get through it, but they don't. When foraging, the birds are not particular where they go so long as the way is easy and the food plentiful. Hence the slightest obstacle will turn them. They saunter along the *pagar*, come to an opening and start through. The moment they step on the platform it falls, releases the trigger, up goes the *baur*, and the victim hangs suspended by the legs.

It is my favourite trap. Six can be made in an hour at no cost, and it is very effective. I have caught argus, fire-back

and Bulwer pheasants, jungle fowl, porcupine, wild cat, civet cats, &c., in them. Once we got a monkey, but a friend released him. Many times we got planduk, or mouse-deer, into *jerats* but they always got away.

II. The *Bubuang*, or *Krinkap*. (Plates V, VI.)

This is a fall trap for birds. The *bubuang* may be allied to *bubu*, a fish trap something like an eel creel, and does not seem to have any connection with *buang*, to throw out, a word which has many prefixes, but not *bu*.

The word *krinkap* I suspect to be a Dyak modification of the Malay *perangkap*, a common word for a trap, signifying literally that which catches.

The *bubuang* is a clumsy contrivance used for catching jungle-fowl and pheasants. It is neither so easily made nor so effective as a *jerat*, and as it nearly always kills the victim, is not in use by the Moslem Malays. The only ingenuity about it is the trigger.

The parts of a *bubuang* are as follows :—

- Fig. 3. a. The *Kalung*, or drop.
- b. The *Tiang*, or posts.
- c. The *Baur*, or spring.
- d. The *Tali*, or cord.
- e. The *Pagar*, or fence.
- Fig. 4. f. The *Pungayet*, or catch.
- g. The *Tuil*.
- h. The *Peningkas*, or trigger.
- i. The *Runut*.

A fence or *pagar* about eighteen inches high is erected, at one end of which two stout sticks, *tiang*, supporting a cross-stick in the forks, are placed. At the other end of the *pagar* a small log of wood blocks up the opening. A roof, or *lantei*, rests loosely upon the end log and also upon the *kalung*, or drop, also a block of wood.

The heavy *kalung* with the roof resting on it is hung by bark cords to the *baur*, or spring-stick, at the farther end of which a string, *tali*, connects it with a trigger.

The trigger is placed inside the *pagar* on the right hand. It consists of a stick, *pungayet*, with a tine, and is firmly fixed in the ground. The end of the *tali* is attached to a straight stick, *tuil*, which catches under the tine and rests upon the double pointed *peningkas*, or trigger. The *tali* thus pulls up the *tuil* and presses it upwards against the tine and downwards on to the top of the trigger.

To the upper part of the trigger a fine string is attached and passes across the trap to the opposite side where it is fastened to the trigger. This cord or *runut* is about five inches from the ground.

A bird entering the trap presses against the *runut*, the trigger gives way, releasing the *tuil*, and the *kalung* falls with the *lantei* on top of it.

The words *tiang*, *tali*, *lantei*, and *pagar*, are common Malay words signifying respectively post, cord, floor, and fence, and are not technical terms.

III. The *Kelung*. (Plate VII.)

The *kelung* now to be described is a deer trap consisting essentially of an oblong enclosure of rough poles, roofed, and having a portcullis-like door.

The word *kelung* is in universal use in the Malay states for the extensive fish-stakes which form such a feature along our shores, and I was somewhat surprised to find the name in use both by Dyaks and Malays for a deer trap. I hope to write a separate paper on fish traps, and will only here remark that the fish *kelung* is a labyrinth of split-bamboo mats leading into a central enclosure.

The deer *kelung* consists of the following parts:—

Fig. 5. The enclosure or *Pagar*, with its *tiang*, &c., as in the *bubuang*, but of course much larger.

a. The *Pintu*, or door.

b. The *Baur*, or lever.

c. The *Tali*, or cord.

Fig. 6. d. The *Tuil*.

e. The *Sekang*.

f. The *Peningkas*.

g. A peg with no special name.

h, h. The *Runut*, or lines.

The height of the *pagar* is about 6 feet (1 *depa*), and the length twice as much. The trigger is placed outside the *pagar* near the end furthest from the door.

It will be noticed that what is here called the *sekang* is the *tuil* of the *bubuang*, and the *tuil* of the *kelung* is the *pungayet* of the *bubuang*. I could get no explanation of this though I made special inquiries.

The *sekang* catches in a notch in the *tuil* at one end, and in a similar notch in the *peningkas* at the other. The *peningkas* also engages with the peg by a notch.

Two lines, *runut*, lead from the *peningkas* to the far side of

the enclosure to which they are fixed. These *runut* are made of a fine black liana, and if string be used it is always dyed black.

In the pagar behind the *runut* a quantity of pandan (*Pandanus*) leaves and a little salt are placed as bait. The deer enter the pagar, press the *runut*, displace the peningkas and the door falls.¹

IV. The *Pēti*. (Plate VI, VIII.)

We now come to two very interesting methods of taking larger game such as pigs and deer.

The *e* is very short and the word is in sound much like the French *petit*. It may be allied to the Malay *petik*, to "touch" a stringed instrument.

The *peti* consists essentially of a spring armed with a fixed spear, and as will be shown, may help us to understand how the bow might have been produced.

The parts of a *peti* are as follows:—

- Figs. 7 to 9. *a*, *a*. *Pangat*, or posts.
b. *Mata siah*, or spear.
c. *Unkrung*, or ring.
d. *Tuil*, or trigger.
e. Has no special Dyak name.
f. *Mutan*, or band.
g. *Runut*, or cord.
h. *Klandu*, or toggle.

The size of the *peti* depends upon the game sought.

For pigs the *pangats* are about $1\frac{1}{2}$ depas (9 feet) and the *mata siah* $1\frac{1}{2}$ jenkals (11 inches). The *mata siah* is generally made of bamboo, and the binding cords and *runut* of bark cord.

Two stout posts, *pangat*, *a*, are firmly fixed in the ground, and to the top of one of them a tough elastic stick is bound by one end and acts as a spring. Near the end of this the *mata siah*, *b*, is attached. The *unkrung*, *c*, is a ring of plaited split rotan, about $2\frac{1}{2}$ inches in diameter and half an inch wide. This is quite loose. The *tuil*, *d*, or trigger, is a thin stick 4 inches long, tied to the free end of the *mutan*, *f*, or band, which is fastened to a *pangat*. A longer stick, tough and elastic, completes this part of the mechanism.

To set the *peti* the *pangat* *a*³ is pulled back towards *pangat* *a*²; the *mutan*, *f*, is then passed round *pangat* *a*³ below the *mata siah*, *b*, the end of the *tuil*, *d*, pressing against the opposite side of *pangat* *a*³ as shown in the plan. The stick, *e*, is passed

¹ Deer are sometimes caught with a large Jerat, having a hook in place of a noose. I have not yet seen this in use.

beneath the *tuil*, *d*, touching it¹ and its other end sprung back to the opposite side of *pangat* *a*². Over the ends of *d* and *e*, the *unkrung*, *c*, is placed to prevent *d* and *e* flying apart; *d* and *e* by their outward pressure holding *pangat* *a*³ in position.

To *pangat* *a*¹, at the height of the *unkrung*, is tied the *runut*, *g*. This passes through the *unkrung* and terminates at the *kālanduk*, *h*, a thin stick or toggle somewhat longer than the diameter of the *unkrung*. The *runut* is nearly horizontal.

An animal passing between *pangat* *a*¹ and the *mata siah* pushes the *runut* outwards, draws up the *kālanduk* which pulls off the *unkrung* and releases the *mata siah*, which flies to *pangat* *a*¹ with terrible force, often stabbing the victim to the heart.

The *peti* is a fearful machine by which many Dyaks have lost their lives. It has been effectively used to kill the rhinoceros. My men were well acquainted with its use, and I had to prohibit it for fear of accident. It is forbidden in Sarawak.

V. The *Pēti Lanchar*. (Plates IX, X.)

The *peti lanchar* is even more interesting than the *peti*, combining in itself some of the principles of the bow and catapult.

It is not known to every Dyak tribe, and most of my men, Kalakas, were ignorant of it. It was, however, speedily adopted by them till I put a stop to it. In Sarawak it is not allowed to be used.

My mandore, Sali, a Sarawak Malay, made the first for me, and the names of the parts are those he gave me. None of my Dyaks knew any words to represent the parts.

Figs. 10, 11. *a, a, a. Tiang*, or posts.

b. Jimbang or *Jimbattan*, or bridge.

c. Galang or *Kalung*, crotched sticks.

d. Juran, or spring.

e. Pungati, or trigger.

f. Chinchin, or ring.

g. Sasawat, or string.

h. Mata peti, or arrow.

i, i. Tukul bubu, or pegs.

The *peti lanchar* consists of three *tiangs*, *a*, from 18 inches to 2 feet high, cleft at the ends to receive the *jimbang*, *b*, and *kalung*, *c*. These five parts form the rigid frame.

A long elastic pole, the *jurun*, *d*, is fixed at one end in the

¹ It is not necessary, though preferable, for the stick to touch the *tuil*. A figure is purposely drawn with the parts free, to show the arrangement of parts.

ground and further secured by two pegs or *tukul bubu*, *i* (trap pegs), one on each side. These hold the *jurun* rigid while it is bent back in setting.

On the *jumbang*, *b*, the *chinchin*, or ring, *f*, of rotan, travels, to which is attached the *sasawat*, *g*, a cord of thin black creeper. The *pungati*, *e*, is a piece of pointed stick attached to the *tiang*, *a*¹, by a short cord. The arrow, or *mata peti*, is a stick or bamboo pointed at one end and notched or forked (*gingin batar*) at the other.

To set (*passang*) the *pēti* the *jurun*, *d*, is bent backwards against *tiang a*¹; the string of the *pungati*, *e*, is then passed over it and the butt end of the *pungati* pressed against the *jurun*, the point being inserted in the *chinchin*, or ring, *f*.

The *sasawat*, *g*, is led across a deer path, the trap being hidden in the jungle. No pig or deer would pass a white *sasawat*, hence it is always black.

The victim pressing against the *sasawat*, pulls the *chinchin*, or ring, from the *pungati*, the *jurun* is released and the *mata peti* shot forward. The *mata peti* rests against the *jurun* and on the *galung*.

It is evident that such a trap fires its arrow in a very uncertain direction. Hence, where bamboo can be obtained, the *mata peti* is inserted in a bamboo on each side of which a groove is cut. The *jurun* presses against the notch as before, and the bamboo, acting as a barrel, makes the arrow fly straight.

VI. The *Peti* and the Bow.

It is singular that the Dyaks having invented the *peti* and the *sumpitan* never designed the bow, which is also unknown to the Malays of Borneo. Yet the *peti* contains all the elements necessary for making a bow.

The common *peti* is a bow with an arrow fixed to it, and the string attached to one end by a temporary catch. If the arrow worked loose it would shoot away when the trap was sprung.

In the *peti lanchar* a step in advance can be seen. The arrow is moveable; but the string is still detached from the bow.

The bamboo barrel is most likely a suggestion from the *sumpitan*.

VII. Etymology.

A few words may be said respecting the etymology of the terms used. Not speaking the Dyak language my information was derived through Malay, and my instructors failed to give

me the meaning of many of the words. "What does *lanchar* mean?" I would ask. "Why this *is* the *lanchar*," would be the reply. As many of the Malay words are in common use it may be most of the Dyak words also are not technical terms. In the following notes D. stands for Dyak, M. for Malay :—

Jěrat, pr. *Jer'-at*, D. and M.

Tidat, pr. *Tě-dat*, a trigger, D. and M., appears to be synonymous with *pungati*.

Bunkong, pr. Bunk'-ong, a hoop, D. and M.

Peningkas, pr. Pening'-kas, D. and M. is applied to a stick which falls to the ground from a very small distance, as distinguished from *kalung*, which falls from a height.

Liar, pr. Lē-ar, D. and M., synonymous with Malay *sabar* and *savar*. The sticks or broken branches used to mark the route when in the forest are called by their names, which are not given by Swettenham, Maxwell, or Favre.

Pantar, D. and M., in common use in N. Borneo.

Baur, pr. Bough-rr, D. and M., an elastic stick or spring.

Kalung, D. and M., see *peningkas*.

Sěkang, pr. S'kang, D.

Lanchar, D.

Pungati, pr. Pung'-ati, see *Tidat*.

Sasawat, pr. Sasar'-wat, D. and M., a thin cord, as distinct from *tali*, a cord which may be string or a cable. Synonymous with *runut*.

Runut, D. and M., see above.

Tukul Bubu, D. and M., *Tukul* = pig *bubu*; = trap.

Mata Siah, D. and M. *Mata* here means sharp. It is quite distinct from *mata*, eye. Malays here say *mata pisan*, to sharpen a knife. *Siah* is Dyak and its meaning unknown to me.

I must leave this subject to competent philologists, and here only record the little I know, because the words do not occur in ordinary dictionaries.

All the Borneo natives use pit-falls with sloping sides, like native graves, but there is nothing of particular interest in them. This paper does not pretend to be exhaustive, but merely records accurately the traps I have seen.

Explanation of Plates IV to X.

A series of figures of Borneo Traps, sketched by Mr. Skertchly, to illustrate the foregoing paper.

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|----------------|---|
| Plate IV, fig. | 1.—The Jerat, or spring and noose trap. |
| „ V, „ | 2.—The trigger of the Jerat, set. |
| „ „ „ | 3.—The Bubuang, or Krinkap. |
| „ VI, „ | 4.—The trigger of the Bubuang, set. |
| „ „ „ | 7.—The Peti, a trap for large game. |
| „ VII, „ | 5 and 6.—The Kelung, or deer-trap. |
| „ VIII, „ | 8.—The trigger of the Peti, set. |
| „ „ „ | 9.—Plan of the Peti trigger, set. |
| „ IX, „ | 10.—The Peti lanchar. |
| „ X, „ | 11.—The trigger of the Peti lanchar, set. |
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ANTHROPOLOGICAL MISCELLANEA.

PRECOLOMBIAN METALLURGY IN VENEZUELA, S.A.

Mr. HYDE CLARKE communicates the translation of a paper by Señor V. Marciano, on a subject of some interest—namely, the Composition of Copper Objects belonging to the epoch before the discovery of America by Columbus. It also contains a correction of Von Humboldt. Mr. Marciano says:—

The knowledge of the composition of ancient metallic objects, of which the origin and relative date are indisputable, is of great importance to the history of the progress of humanity.

M. Berthelot has already established in an obvious manner by the chemical analysis of a metal object dating from more than 4,000 years before our era, that the “age of bronze” was preceded by the “age of copper.” (See the “*Moniteur Industriel*,” June 6th, 1889.)

Once the antiquity of the metallurgy of copper established for the old world, it is interesting to make investigations in this direction for the new continent. Already Vauquelin, at the beginning of the century, had analysed a metal chisel coming from the Incas of Peru, and recently, in 1883, M. Damour had determined the composition of another similar instrument brought from Quito by Boussingault; the two objects of almost identical composition were formed of a mixture of copper and tin. (Boussingault in “*Comptes Rendus*,” t. xcvi, p. 545.)

The anthropological explorations of Venezuela with which I was commissioned by the Government of this country in 1887, brought to light amongst the Precolombians of the littoral, a civilization which they did not expect to find amongst people considered, according to the interested accounts of Spanish historians, as barbarous tribes, no more advanced than those who wander in the savannahs of Orinoco (Dr. G. Marcang “*Ethnographie Précolombienne du Venezuela, Vallées d’Aragu et de Caracas*”). But the numerous excavations I worked did not reveal the least object in metal amongst the great quantity of every kind they enabled me to collect.

In spite of the explicit testimony of the historians of the conquest of Venezuela, which signalises the existence of metallic objects amongst the natives of the country, that of Humboldt denies the existence of metallurgy amongst them, founding his

assertion on the geognostic study he had made in traversing the country where he did not find any signs even of a probable auriferous stratum. The illustrious traveller explains the existence of these objects in gold amongst the Indians in their commerce from place to place with those of Cordillera, communications, however, which are far from being demonstrated. I chanced to discover near San Juan de los Morros a gold mine worked by the Precolombians, as is attested by an excavation twenty metres in diameter by at least as many in depth, made in the middle of the ridge line of the hill containing the stratum. The ore forming the almost vertical vein is a schistose rock, soft, completely disintegrated, containing gold and silver respectively in the proportion of 30 gr. and 1 kg. per ton. The ore yields at the simple washing and beating one quarter of the gold contained.

A few days ago near the village of Tequia, situated at a distance of twenty miles from Caracas, the pickaxe of an excavator uncovered several sarcophagi in earthenware containing bones, ornaments, of various substances, and a certain number of metal objects which, unfortunately, have been distributed amongst a number of persons. I was able to obtain three of these objects from which I took some filings for the purpose of analysis, the results of which form the object of this note.

The first is a circular medal bearing on one of its sides a design in chased work representing a scorpion or some such thing. Nos. II and III are pendelogs, obtained by fusion, and the execution of which is fairly well done. The analysis gave—

			I.	II.	III.
			—	—	—
Weight of objects .	..		—	15·170g.	6·196g.
Gold .. ..	..	..	13·3	23·7	7·6
Silver .. ..	..	..	73·3	5·8	traces.
Copper .. ..	..	..	13·4	47·6	38·4
Iron .. ..	..	..	—	22·9	54·0
			—	—	—
			100·0	100·0	100·0

One can say that No. I was made by hammering with native gold very rich in silver, and containing copper as is sometimes the case with the products extracted by myself from the gold mine as I have stated. Nos. II and III are, without doubt, the result of an alloy *ad hoc*. Within gunshot from the place where the sarcophagi were disinterred there is a vein of copper which crops out on the side of the hill, and is composed of carbonate of copper closely mixed with oxide of iron. It contains neither gold nor silver. Per contra, history mentions a gold mine worked by Indians before the conquest, situated near Tequia, but in an opposite direction to that of a copper mine. The objects analysed seem to me interesting because they show the existence in Venezuela of a Precolombian metallurgy, which, far from confining itself to the extraction of native gold, made alloys of the precious metal with that obtained by reducing the ferriferous copper ores.

RECENT ANTHROPOLOGICAL WORKS.

Dr. A. B. MEYER, the Director of the Royal Zoological and Anthropological Museum in Dresden, has presented to the Library of the Institute a copy of his *Album von Celébes-Typen* (Dresden : Stengel and Markert). This contains thirty-seven plates, with about 250 subjects, accompanied by brief descriptive letter-press. The plates are reproduced from photographs, most of which were brought by Dr. Meyer from Celebes in 1870 and 1871.

Mr. H. LING ROTH has presented a copy of his new work, *The Aborigines of Tasmania* (Kegan Paul, Trench, Trübner & Co.). This volume contains 224 pages of text, with voluminous appendices, and is illustrated with numerous autotype plates from original drawings by Edith May Roth.

Dr. E. B. TYLOR, who contributes a Preface, says, that "In the present work the recorded knowledge as to the extinct native race of Tasmania, has been brought together with, I think, an approach to absolute completeness." The following is an abridged analysis of the work :—Chapter I, Introduction ; II, Form and Size of the Aborigines, Physiognomy, Hair, Colour, Odour, Motions, Pathology, Abnormalities, Physical Powers, Senses, Reproduction ; III, Psychology, Government, Customs, Medicine ; IV, War ; V, Fire, Hunting and Fishing ; VI, Nomadic Life, Habitations, Social and Marital Relations, Education, Initiatory Ceremonies, Deformations, Burials ; VII, Method of wearing Hair, Painting and Tattooing, Clothing, Personal Ornaments ; VIII, Astronomy, Arithmetic, Music, Drawing, Games and Amusements ; IX, String, Basket-work, Stone Implements ; X, Trade, Communications, Navigation, Swimming, Topography, Natural Forms, Natural History ; XI, Infanticide, Population, Contact with Civilized Races ; XII, Language ; XIII, Osteology (by Dr. Garson) ; XIV, Origin.

Dr. ROBERT MUNRO has presented a copy of his new work on *The Lake Dwellings of Europe* (Cassell and Co., Lim.). This volume embodies the results of a journey through the whole of Central Europe with the view of collecting materials, by direct observation, for a course of Rhind Lectures in Archæology in 1888. The work is divided into six sections, corresponding with the number of lectures. The first deals with the settlements in Lake Zurich, Western Switzerland, and France ; the second with settlements in Eastern Switzerland, the Danubian Valley, and Carniola ; the third with Lake Dwellings and pile-structures in Italy ; the fourth is devoted to the special character of the remains found at La Tène and in the Lake of Paladru, and to the lacustrine and marine dwellings in the Lower Rhine District and North Germany ; the fifth chapter treats of the Lake Dwellings of Great Britain and Ireland ; and the sixth discusses the culture and civilization of the lake dwellers of Europe. The work is amply illustrated and furnished with a copious Bibliography.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

JUNE 10TH, 1890.

PROFESSOR W. H. FLOWER, C.B., LL.D., F.R.S., *Vice-President,*
in the Chair.

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the INDIA OFFICE.—*Epigraphia Indica* and Record of the Archaeological Survey of India. Edited by Jas. Burgess, LL.D., C.I.E.

From the AUTHOR.—The Orbito-Maxillary Frontal Suture in Man and the Apes, with Notes on the Varieties of the Human Lachrymal Bone. By Arthur Thomson, M.A., Oxon., M.B., Edin.

— Additional Note on the Influence of Posture on the Form of the Articular Surfaces of the Tibia and Astragalus in the Different Races of Man and the Higher Apes. By Arthur Thomson, M.A., M.B.

— Primitive Games. By Everard F. im Thurn, M.A.

— Mining Laws and Customs in the Malay Peninsula. By Martin Lister.

— Les Origines de la Cartographie de l'Europe Septentrionale. Par M. le Dr. E. T. Hamy.

- From the AUTHOR.—Funde aus der Steinzeit Aegyptens. Von W. Reiss.
- From the GOVERNMENT OF PERAK.—The Perak Government Gazette. Vol. iii. Nos. 10–14.
- From the BUREAU OF ETHNOLOGY, WASHINGTON.—Textile Fabrics of Ancient Peru. By William H. Holmes.
- Bibliography of the Iroquoian Languages. By James Constantine Pilling.
- Bibliography of the Muskhogean Languages. By James Constantine Pilling.
- The Circular, Square, and Octagonal Earthworks of Ohio. By Cyrus Thomas.
- The Problem of the Ohio Mounds. By Cyrus Thomas.
- Fifth Annual Report. 1883–84.
- Sixth Annual Report. 1884–85.
- From the DEVONSHIRE ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—Index to the twenty-first volume.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. No. 6.
- From the BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—Dagh-Register.
- From the ACADEMY.—Transactions of the Wisconsin Academy of Sciences, Arts, and Letters. Vol. vii. 1883–87.
- From the ASSOCIATION.—Journal of the East India Association. No. 2. 1890.
- From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. xxxiv. No. 152 and Index to Subjects. Vol. xxxiii.
- From the SOCIETY.—Proceedings of the Royal Geographical Society. June, 1890.
- Proceedings of the Society of Biblical Archæology. Vol. xii. Pt. 7.
- The Journal of the Proceedings of the Royal Society of Antiquaries of Ireland. No. 1. Vol. i. Fifth Series.
- Proceedings of the Asiatic Society of Bengal. Nos. 7–10.
- Journal of the Asiatic Society of Bengal. Vol. lviii. Nos. 291–5.
- Journal of the Society of Arts. Nos. 1956–9.
- From the PUBLISHERS.—Folk-Lore. Vol. i. No. 2.
- From the EDITOR.—The American Antiquarian. Vol. xii. No. 3. May, 1890.
- Nature. Nos. 1072–1075. 1890.
- Science. Nos. 378–381. 1890.
- L'Anthropologie. Tome i. Nos. 1–3.
- Revue Scientifique. Nos. 20–23.

The Rev. E. F. WILSON, of Sault St. Marie, Ontario, exhibited a Pottawatamie boy, and described briefly certain North American Indians.

EXHIBITION of a FETISH, or ULA, from LAKE NYASSA.

By PROFESSOR W. H. FLOWER, C.B., LL.D., F.R.S.

PROFESSOR FLOWER exhibited, on behalf of the Rev. Leonard O. Warner, an instrument termed the *Ula*, from Likoma Island, Lake Nyassa. It is made of the skin of a small animal, stuffed with "medicine," and is used by witch-doctors for augury and for discovering the perpetrator of a crime. The doctor pulls it about, rubs it in his hands, talks "gibberish" to it, and then professes to receive from it an answer. The manipulation of the ula is expressed by the word *tembenuza*. The instrument is regarded with deep reverence, and it is extremely difficult to obtain an example. Mr. Warner believes that the one procured by him, and exhibited to the meeting, is the only one ever brought to England. The specimen has been presented by Mr. Warner to the Ethnological Department of the British Museum.

Professor Flower pointed out that the skin was that of an ichneumon, but belonged to a species not represented in the Natural History Museum. It is believed by Mr. Oldfield Thomas to be referable to *Herpestes sanguineus* of Rüppell.

The ANSAIREE of ASIA MINOR.

By THEODORE BENT, Esq., M.A.

MR. BENT gave a description of the Ansairree who live in and around Tarsus, and who practice amongst themselves a secret religion. He connected their worship with that of the Ali-Ullah-hi, of northern Persia, and brought several points to bear on the theory that the nomad tribes from the Mediterranean to the Caspian all practice this occult religion. All look upon a certain Barbé Nasere as their founder, the God-head of Ali is the basis of the religion, and they admit a Trinity, the Ain, Min Sin, or Ali the Father, Mahomed the Son, and Salman El Farsi, the Holy Ghost, which, joined with the fact that they make use of wine in their secret feasts as a symbol of Ali, would point to a Christian origin for the sect. A full account of the Ansairree will appear in the "Cornhill Magazine" under the title of "A Secret Religion."

The Ansairée are divided into four sects, the Shemali, the Kalazians, and two others, the peculiar tenets of which Mr. Bent described. Their prayers are very beautiful and expressive, and there are many curious points analogous to freemasonry in connection with the initiation of a new member.

At Tarsus they are thrifty and well-to-do, owning most of the gardens which surround that town, and many of their customs are analogous to those practised by the Kizil Bashi, a tribe who live further north. Mr. Bent also found the same religious tenets in a modified form amongst the Afshar tribes, and considers the extent of those who belong to this denomination to be far wider than was hitherto supposed.

Mr. Bent based his account on three sources of information, firstly, a close examination of the Ali-Ullah-hi in Persia; secondly, a written account of a renegade named Suleiman; and thirdly, personal investigations this spring in Tarsus.

DISCUSSION.

Professor RUPERT JONES, alluding to Mr. Bent's remark on the choice of hill-tops for some religious observances as having probably an ancient origin, noted that the habit of passing under or sleeping beneath the "table of the entombment" in Greek Churches may be associated with the similar old Welsh practice as to the Altar-table in Churches, and with the very much older notion of the value of passing a night in a cromlech, cist-vaen, or sacred stone cell, for purification, initiation, or other religious purpose.

Mr. BEAUFORT asked whether, as Mr. Bent explained that the Ansairées kept the same festivals as the Christians, as for instance, Good Friday and the Epiphany, he could give any idea how they calculated the time for the occurrence of these festivals, as that would be interesting as showing connection with Christianity.

Mr. BENT, referring to a question concerning worship of Ali-Ullah-hi on mountain tops, replied that as the Ansairée of northern Persia lived amongst fire worshippers, they had probably taken this idea from their environments.

Mention had been made of the parallel custom of passing the night under cromlechs in Wales. The custom was referred to very ancient times when Greeks slept in Temples (ἐγκοίμησις) to effect cure.

A question having been asked as to the dates of Ansairée festivals, the speaker stated that the Christian ones were adopted both as to time and method from the neighbouring Christians and the Mohammedans in the same manner.

The following Paper was read by the Author:—

A CONTRIBUTION to a SCIENTIFIC PHRENOLOGY.

By BERNARD HOLLANDER, Esq., of Vienna.

IN a Paper on "Brain Centres of Ideation," read before the Anthropological Institute in February, 1889, I gave a collection of facts relating to the subject of brain functions in their subjective and objective aspects, with a view to show the possibility of a "scientific" phrenology, and the necessity of re-examining the empirical observations made by Dr. Gall, bearing in mind the defects of his system, and the over-strained pretensions of his followers. In the present communication I present the result of further investigations, showing again a striking similarity between modern experimental researches on the functions of the brain, and the observations of early phrenologists, whose work has been long ago rejected on account of the insufficiency of their method.

Centre for the concentration of attention and visual ideation.—The majority of brain-physiologists agree that the "visual" brain-centre is located in the first occipital convolution (See Exner, "Localisationen der Functionen in der Grosshirnrinde des Menschen," p. 60.) True, Professor Ferrier was for a long time under the impression that the "angular gyrus" is the centre of sight; but it is now shown that lesion of the angular gyrus does not affect the sight, whereas destruction of—say the left—gyrus occipitalis prim. causes blindness on the right eye. Professor Ferrier's work is nevertheless of great significance in this investigation, for he is a philosopher as well as a scientist, and has not only mapped out the brain in motor-areas, but has considered the brain-hemispheres psychologically. Thus he maintains that destruction of the visual brain-centre causes not only loss of vision but also loss of visual ideation and memory, "not only makes the individual blind presentatively, but blind re-presentatively or ideally" ("Functions of the Brain," p. 429).

He continues (p. 463, § 18): "Ideas excited peripherically, arising spontaneously, or recalled voluntarily, tend to flow along the lines of association by contiguity or similarity. The current may flow on uninterruptedly as in a reverie or a dream, or it may be suddenly checked or diverted by an impression from without, which vividly engages our attention. Attention so excited is purely passive, and the concentration of consciousness is proportional to the intensity of the stimulus. But just as we can at will fix our gaze on some one object out of many appealing to our sense of vision, and see this clearly while all

others are indistinct or invisible, so we can fix our intellectual gaze, or concentrate our consciousness, on some one idea or class of ideas to the exclusion of all others in the field of intellectual vision. This is a purely volitional act, and its exercise is accompanied by a distinct feeling of exertion, and ultimately fatigue, if continued.

"The physical expression of rapt attention is that of intent gaze, with the eyes accommodated for near or distant objects, and associated with such movements of the head as serve to bring the object on the punctum centrale of the retina." Thus indicating that intellectual attention is essentially ideal vision.

"Apart from the passive or reflex concentration of consciousness conditioned by the intensity of the spontaneously revived or actual sensation, *we cannot voluntarily concentrate attention on any idea which we cannot represent visually*, either in its own characters, source or relations."

According to this mode of reasoning "intellectual attention is mainly ideal vision," and the faculty of attention is intimately related to the centres of visual perception and ideation.

Whether Professor Ferrier be right or wrong, we must take note of the remarkable coincidence that George Combe should have located the same faculty in the same area, *i.e.*, first occipital convolution.

"Concentrativeness," the name given to the faculty in question by Combe, was supposed to be a power to arrest one's attention for a long time on one object. The individual is said to be absorbed. When we endeavour to concentrate our thoughts upon a subject, we endeavour to seize upon the object of thought and keep it steadily before the mind. An effective concentration of the faculties takes place only when the original leading conceptions are of themselves powerful and permanent, and the concentration will be found consequently to be most perfect when there is least effort to produce it.

As to the nature of the supposed faculty there can be no doubt that some minds possess the power of dwelling intently upon one thing, to the exclusion of others having no relation to it. Persons with a comparatively large development of the brain-area concerned, I suppose, would possess the physical condition to continuity of thought; they would fix the mind upon an object to be done, and not leave it till it is finished, while such persons as have this brain-area defective, would commence many things and finish few, would lack consistency, and fail to carry out ideas.

Whatever may be thought of the hypothesis, it will be granted that the coincidence of harmony between Professor Ferrier's

reasoning and the statements made by phrenologists must have some significance.

Centre for the revivification of ideas.—Mr. Herbert Spencer has written some able articles on Phrenology (Zoist, Vol. i and ii), in which he not only demonstrated his belief in Gall's system, but showed himself an acute observer. One of those articles entitled "A Theory concerning the Organ of Wonder," is of special interest to us.

Dr. Gall observed a connection between visions or hallucinations, and a particular brain-area, but he was not able to arrive at any definite conclusion as to the function of this part. His followers, however, as the result of their observations on living heads, maintained that a large development of this "un-named" area of Gall is accompanied by an active sentiment of wonder or marvellousness. Against this theory Mr. Herbert Spencer objected, and substituted a theory of his own, which, as I shall show, is very similar to that of Professor Ferrier regarding the function of the same area.

The origin of visions and hallucinations has always been a puzzle to both pathologists and students of mental science, and when Professor Ferrier's experiments on the brain-cortex became known, it was supposed that his "visual" and "auditory" centres would offer an explanation. The visual centre was originally located by Professor Ferrier in the "angular gyrus," but has since been referred by foreign investigators, and by Professor Schäfer in this country, to the occipital lobe, especially the first occipital convolution. However, at the time of the enquiry which I am about to quote, the visual centre was supposed to be in the angular gyrus.

Dr. W. J. Mickle ("Journal of Mental Science," Vol. xxvii and xxviii) examined 32 cases of general paralysis (in soldiers), in order to see whether pathology confirmed Ferrier's localizations, on the theory that visual hallucinations are the result of disturbed visual centres. If the theory be correct the diseased area must occupy the angular gyrus, or as is now believed, the first occipital convolution. Out of 15 cases of visual hallucination (17 were auditory) not a single case showed affection of the occipital lobe, and even with regard to the much closer angular gyrus—which is, as we know, no visual centre at all—Dr. Mickle has come to the conclusion that "in cases of visual hallucination in general paralysis, the angular gyrus is not affected in the marked manner one would anticipate, on the theory that it is the sole cortical visual centre." On the other hand, I find that the cases Dr. Mickle mentions only confirm the view that hallucinations are concerned with a morbid change in the structure of the most posterior zone of the frontal lobe, and that

the hallucinations vary in character and are augmented in relation to the spread to the surrounding convolutions.

Let us now see what Mr. Herbert Spencer has to say as to the origin of visions. In the paper quoted, he supposes the area, which Gall noted to be connected, with a liability to visions, to be the centre for the *revivification of ideas*, the organ of "Reviviscence" as he calls it, and supposes this faculty to be the chief agent of imagination. His own words are :—

"The reader will at once see that the liability to be deceived by spectral appearances, must, other things being the same, vary as the power of the proposed faculty. The more efficient the instrument for the revivification of impressions, the more nearly will the images produced approach in appearances the realities. Celebrated painters have possessed the power of calling up objects so distinctly before the mind's eye as to render the process of depicting them little more than copying from Nature. If then the faculty be capable of effecting so much under the influence of its ordinary stimulus, we may reasonably assume that its unnatural actions will be accompanied by a difficulty in distinguishing revived impressions from real perceptions. Numerous cases of mental illusions from a slightly disordered state of the brain might be quoted. Similarly may be explained the mental action which gives rise to the seeing of ghosts and apparitions. During the gloom of night, and under the influence of appropriate feeling, every dimly distinguished object calls up in the mind some pre-existing impression to which it may chance to bear a faint resemblance, and amid the excitement resulting from extreme fear, the mental image is rendered so vivid as to be mistaken for the thing seen. Persons will of course be subject to such illusions in the ratio of their endowment of the faculty of Reviviscence."

He goes on :—"Reviviscence creates mental imagery, love of ghost stories, witchcraft, affording scope for imagination. It has been maintained that Reviviscence is the parent of imagination—that imagination is but a revival and putting together of impressions previously received by the perceptive faculties, and that upon the efficiency of the reviving agent must mainly depend the vividness of ideal images. Poets, therefore, who are in a great measure distinguished by their powers of imagination, may be naturally expected to possess a large endowment of Reviviscence. That such is the fact may be seen by reference to the heads of Milton, Shakespeare, Spenser, Dryden, Beaumont and Fletcher (dramatists), Drummond, G. Buchanan, Otway, Malherbe, Tasso, Young, Bunyan (Bunyan was a true poet, philosophically speaking, though not conventionally recognised as such), Cowper, Darwin, Scott, Byron, Wordsworth, and

Hogg. In all of them the organ is large, in some very large. The names of other poets might doubtless have been added to the list had likenesses of them been attainable."

He continues:—"Further evidence is deducible from the fact that so many men of powerful memory, or brilliant imagination, have been subject to mental illusions. Tasso held conversation with a spirit gliding on a sunbeam. Malebranche heard the voice of God distinctly within him. Pascal often started from his chair at the appearance of a fiery gulf opening by his side. Luther conversed with demons. Descartes was followed by an invisible person calling upon him to pursue the search of truth. Swedenborg describes heaven and hell. Benvenuto Cellini was accustomed to behold a resplendent light hovering over his own shadow. Dante talked with spirits, and Cowper was haunted with spiritual sounds. Inasmuch as these cases favour the conclusion, that the power of reviving impressions, either as manifested in memory or imagination, frequently co-exists with the liability to spectral illusions, they give collateral support to the proposed theory, for they show that these several traits emanate from the same peculiarity of organisation."

Mr. Herbert Spencer's theory, then, amounts to this—given in his own words:—"That the organ entitled 'Wonder' by the phrenologists has for its ultimate function the revival of all intellectual impressions, that it is the chief agent of imagination, and that it affords a tangible explanation of mental illusions, either when due to disordered states of the brain, or to unusual excitement."

The situation of "Wonder," or, to use Mr. Herbert Spencer's term "Reviviscence," corresponds with Ferrier's area (12), "the excitation of which causes the eyes to open widely, the pupils to dilate, with movements of the eyeballs and head. *It gives the appearance of attention, and the movements indicated are essential to the revivification of ideas.*"

Professor Ferrier gives the following explanation:—"Just as the initiation, or partial excitation, of any particular movement reacts back upon the sensory cohesions with which it is associated, so the *movements of the head and eyes* react back on the centres of vision and keep the ideal object in the field of clear consciousness, and through this *recall its various sensory and motor associations.* *It is not essential that the object revived in idea should be so clearly revived in the visual field as the actual object itself.* There are great differences in this respect among different individuals,¹ and there is no relation between the vivid-

¹ See the valuable and interesting observations on this head by Mr. Francis Galton: "Inquiries into Human Faculty and its Development, 1883; Mental Imagery," p. 83, *et seq.*

ness of the mental imagery and the faculty of attention and abstract thought."

The expression produced by Professor Ferrier by means of the galvanic current is the expression we are accustomed to see in visionaries and superstitious people. Vimont says:—"When the emotion of wonder is much excited, the head is carried high, and turned to the side, the eyes are directed toward heaven, widely open, the eyebrows are elevated and the mouth is open. This expression is frequently seen in visionary and superstitious people. When we are impressed by an event, the hands are stretched out, the look is fixed, the eyes are open, and the eyebrows are turned upwards."

Darwin speaks to the same effect, and adds as an explanation: "As surprise is excited by something unexpected or unknown, we naturally desire when startled, to perceive the cause as quickly as possible, and consequently open our eyes fully, so that the field of vision may be increased, and the eyeballs moved easily in any direction." Darwin gives also numerous examples of the stretching of the arms, accompanying sometimes the expression of amazement; an effect which Professor Ferrier occasionally produced. The eyes open widely, the pupils dilate, head and eyes turn, and "occasionally this action is apt to be associated with that described under (5), *i.e.*, extension forwards of the opposite arm."

The seat of the irascible emotion.—Professor Ferrier was at one time disposed to believe the temporo-sphenoidal lobe to be the auditory centre, but it appears to me that he failed to interpret accurately the results of his experiments on this lobe. The principal effect of excitation of this area is "retraction of the ear," but this does not warrant us to conclude that we have discovered the auditory centre, just as we could not conclude that, because excitation of the centre just described (12)—or Reviviscence—causes opening of the eyes, it is the centre of sight. That destruction of the temporal lobe causes loss of hearing is contradicted by foreign experimental physiologists, and disproved by Professor Schäfer in this country. ("Proc. Roy. Soc.," Dec. 22, 1887.)

The apparent harmony of the effects produced in Professor Ferrier's experiments on this lobe with the phrenological localisation of the irascible emotion, must of course be received with caution. But as my object in the first instance is to direct future investigators as to the "probable" functions of the several parts of the brain, my researches on this particular point may not be unwelcome.

The effect of the galvanic current on the 3rd and 4th external convolution of jackals is described by Professor Ferrier as:

"Sudden retraction or pricking of the ear, causing the animal occasionally to make a sudden spring or bound forward." This is centre (14). In cats the excitation of the extremity of the corresponding convolutions—centre (9)—caused opening of the mouth, associated with vocalisation and other signs of emotional expression, such as spitting and lashing the tail as if in rage.

On p. 111 ("Expression of the Emotions"), Darwin refers the retraction of the ears to the care which animals take to prevent their ears being seized by their antagonists, and says: "Consequently through habit and association, whenever they feel slightly savage, or pretend in their play to be savage, their ears are drawn back. That this is the true explanation may be inferred from the relation which exists in very many animals between their manner of fighting and the retraction of their ears. All the Carnivora fight with their canine teeth, and all, as far as I have observed, draw their ears back when feeling savage." Darwin quotes numerous examples showing that animals when savage have their mouths open and the ears drawn backwards, especially the latter.

Gall located in the same region his "propensity to kill," which he afterwards modified to the "carnivorous instinct"; his followers chose the term "destructiveness," and "the locality of it was suggested by comparing the brains and skulls of carnivorous animals with herbivorous, and those of murderers with average human beings." Whatever may be said against his deduction, the facts which he observed nearly a century ago agree with Professor Meynert's (Vienna) observations—a comparison between the brains of carnivorous and herbivorous animals—and with those of Professor Benedict (Vienna)—a comparison between the brains of murderers and carnivorous animals.

Professor Bain says: "Mr. Robert Cox, in an elaborate examination of 'Destructiveness' ('Phren. Journal,' Edinburgh, Vol. ix, p. 402), regards the primitive feeling as the 'propensity to injure,' sometimes with malice, at other times not. We have here, in fact, merely another name for the 'irascible,' emotion, although Combe asserts that metaphysical authors do not treat of any power resembling the destructive propensity. As an example from history, Nero might be cited, whose pleasure of malignity was amply gratified."

Herbert Spencer describes ("Principles of Psychology") the destructive passion as a general tension of the muscular system, gnashing of the teeth, protrusion of the claws, in dilated eyes and nostrils, in growls, and says these are the weaker forms of the actions that accompany the killing of prey.

Conclusion.—In a former communication ("Journ. Anthropol.

Inst.," August, 1889), I have shown the connection existing between—

- (1.) The modern centre for movements of the elevator muscles, and the phrenological organ of "Hope," or "Cheerfulness."
- (2.) The modern centre for movements of the facial muscles, and the phrenological organ of "Imitation," or "Mimicry."
- (3.) The modern "gustatory centre," and the phrenological organ of "Gustation," or "Alimentiveness."
- (4.) The modern centre of the so-called "patience muscles" (raising the shoulder), and the phrenological organ of "Veneration," or "Submission."
- (5.) The effects of excitation and destruction of the "angular gyrus," and the phrenological organ of "Cautiousness."

Having now added three more points for your consideration, perhaps you will grant me thus much—

That the founders of what we are accustomed to consider as the antiquated system of phrenology, though unable, in the state of knowledge at that time, to demonstrate their conclusions, must have been extremely shrewd and careful observers of all the facts which lay within their reach, and that the theories which they based upon these observations are well worth a careful re-examination in the light of modern science.

JUNE 24TH, 1890.

EDWARD W. BRABROOK, Esq., F.S.A., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of NORMAN H. HARDY, Esq., of No. 8, Bloomfield Road, Uxbridge Road, W., was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the SECRETARY OF STATE FOR THE COLONIES.—Despatch from His Honour the Administrator of British New Guinea, giving details of an expedition undertaken to explore the course of the Fly River and some of its affluents.

- From the AUTHOR.—The Gentile System of the Navajo Indians.
By Washington Matthews, M.D., LL.D.
- Notes upon the Gentile Organization of the Apaches of Arizona. By John G. Bourke.
- Classification Naturelle des Sciences. Position et Programme de L'Anthropologie. By M. le Dr. Manouvrier.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie. Mai, 1890.
- From the SOCIETY.—Proceedings of the Royal Society. Vol. xlvii. No. 289.
- Journal of the Ceylon Branch of the Royal Asiatic Society. Vol. x. No. 36. 1888.
- Journal of the Society of Arts. Nos. 1960–61.
- Bulletin de la Société Imperiale des Naturalistes de Moscou. No. 3. 1890, Mémoires. No. 6.
- From the EDITOR.—Nature, Nos. 1076–1077.
- Science. Nos. 382–384.
- Revue Scientifique. Tom. xlv. Nos. 24, 25.
- Bullettino di Paletnologia Italiana. Tomo vi. Nos. 3, 4.

Mr. J. E. Price, F.S.A., exhibited two skulls recently exhumed in the City of London, and described a skeleton found near West Thurrock, in Essex.

The following Paper was read by the Author:—

The STUDY of ETHNOLOGY in INDIA.

By H. H. RISLEY, Esq., B.A., Bengal Civil Service.

ABOUT four years ago, in an article published in the *Asiatic Quarterly Review*, I ventured to complain of “the comparatively scanty use that has been made of the great storehouse of ethnographical data which British rule in India has thrown open to European enquirers.” The complaint is one that cannot be too often repeated. In most works on Indian ethnology, evidence of the most unequal value, derived from the most various sources, is treated as if it were of uniform character. Brahmanical legends are placed on the same footing as facts ascertained by the best modern researches; and one writer after another is content to repeat isolated statements lightly made by some of the earlier observers without seeking to examine the source from which they were originally derived, or to test their probability by the application of the comparative method. Thus it happens that some piece of popular hearsay picked up by Buchanan in the course of his admirable survey of parts of

Bengal, and set down by him for what it is worth, gets separated from its context, and transformed by repeated quotation into an incontestable fact, which forms in its turn the basis of half a dozen wide-reaching theories. A single instance will show what is meant. In the latest Continental works on general ethnography, one of the most interesting of the East Himalayan tribes is credited with monotheistic notions wholly incompatible with their existing stage of theological or mythopœic development, and resting solely on a linguistic mistake of the original observers, which transformed the *general name* of the mostly malevolent powers (I can hardly call them spirits) which the tribe diligently propitiate, into the *personal name* of an imaginary Supreme Being. The paper containing this mistake, which has served for the last fifty years as the *locus classicus* for the tribe in question, contains also other data which, if critically handled, ought to have led to the detection of the error.

For these and similar shortcomings the writers of ethnographic treatises are not alone to blame. Indian ethnographic literature has grave defects of its own, which can only be corrected by systematic original research. In the first place it is extremely unattractive in form, bristles with technical expressions, strange names and unexplained allusions, and assumes on the part of the reader an acquaintance with Oriental conditions and surroundings which can only be acquired by actual residence in the East. These, perhaps, are minor obstacles which scientific students might reasonably be expected to overcome. More serious blemishes are to be found in the fragmentary character of the literature itself, in the writers' disregard of the lines of investigation pursued by European ethnologists, and in the consequent want of system in their method of conducting their inquiries. It seriously detracts from the value of monographs on particular tribes when we find that the researches on which they are based were made more or less at random, and directed towards a variety of different points, while the inquirers themselves had no idea of the relative scientific value of the facts which they recorded.

We have not forgotten that nearly twenty years ago so high an authority as the late Sir Henry Maine¹ drew attention to the great value which the records of settlement and revenue operations in India possess for students of comparative jurisprudence. For ethnographic purposes, on the other hand, this literature can hardly be deemed so instructive. Its range is not wide enough, and the information which it conveys is too meagre. The

¹ "Village Communities," pp. 34 and 61, edition of 1872.

officer in charge of a settlement is very fully occupied with the practical objects of making an equitable assessment of the Government revenue, and of adjusting the relations of landlords to their tenants on a peaceful and permanent footing. With the customs of the people he is concerned only in so far as these throw light upon their status in relation to the land, and unless the connection between the two sets of facts is tolerably obvious, it is no business of his to travel outside the record for the gratification of scientific curiosity. The usages, moreover, by which science sets most store are generally those which lie rather below the surface of Oriental life, and do not force themselves on the notice of European or native officials. In illustration of this difficulty, we may point to the phenomena of totemism, the wide prevalence of which in Bengal was only imperfectly realised by Colonel Dalton, while it entirely escaped the notice of earlier observers. Facts of this order can only be elicited by inquiries embracing a far wider area than is covered by any particular series of land revenue operations, and conducted on a system devised so as to give full play to the comparative method of research. They cannot be picked up *ἐκ παρέρργου* in the course of ordinary official business.

For these reasons the ethnographical data to be found in Indian official reports are, as a rule, neither full enough nor precise enough to appeal very strongly to European ethnologists. Such reports, moreover, are not readily accessible to students; their titles give a very slight clue to the nature of their contents; and any information regarding custom which they contain is generally buried under a mass of highly technical and uninteresting matter. Clearly it is not to be expected that writers on general ethnology should toil through this mountain of chaff in the hope of picking out the scattered grains of knowledge which it might contain. Even were the labour accomplished, it might fairly be doubted whether anyone lacking Indian experience would find himself much the wiser at the end. More probably he would be filled with the regret that he had wandered to no purpose in a wilderness of uncouth names. Indian official reports are addressed to a small circle of experts who have gradually and insensibly acquired the elementary knowledge of the people and the country which forms the key to the sealed volumes of this peculiar form of literature. This knowledge can only be acquired in India, and has, for the most part, never been reduced to writing at all. The result is that writers on ethnology, when compelled to treat of Indian subjects, are thrown back on mere literary accounts which give an ideal and misleading picture of caste and its social surroundings. They show us, not things as they are, but things as they ought to be,

in the view of a particular school or in the light of a particular tradition.

This defect is by no means peculiar to Indian literature. It appears in a less prominent form in the works of European ethnologists, and has probably given rise to the reproach of neglecting critical methods which is commonly laid upon them. We are not so unreasonable as to urge that all ethnographical evidence should be gathered at first hand, and that no one should write about the customs of people with whom he has no personal acquaintance. But in studying some modern books on these subjects, it is difficult to get rid of the impression that the writers were a long way removed from the subjects they were dealing with, and had never quite got into touch with their facts. *Surgit amari aliquid*—we feel that something is wrong, and we are tempted to think that the savage man has hardly had justice done him. It is not for us to lay down a course of preliminary training for distinguished ethnologists, and to demand that Mr. Herbert Spencer should get himself enrolled, like Mr. Frank Cushing, in the sacred societies of the Zunis, or that Sir John Lubbock should follow the example of Mr. Lewis Morgan in joining himself to the Iroquois. The prospect of such an ordeal would perhaps thin the ranks of the votaries of a new science. But in these matters a little knowledge at first hand is a very good thing, and some slight personal acquaintance with even a single tribe of savage men could hardly fail to be of infinite service to the philosopher who undertakes to trace the process by which civilization has been gradually evolved out of barbarism. Such experience would assuredly leave upon his mind a vivid impression of the extreme difficulty of entering into savage modes of thought, of the imperfection and untrustworthiness of testimony, and of the extraordinary fluidity and mutability of custom itself. It would also inspire him with a profound distrust of the statements made in books of travel.

We may indeed claim for ethnographic research in India a comparative immunity from some causes of error which have hampered the development of ethnology and retarded its recognition as a science. Most of the barbarous and semi-barbarous tribes which come under observation in India are at the present day fairly accessible, and the inquirer can as a rule get together as many specimens of them as he wants without undergoing excessive trouble or hardship himself. Observations can thus be multiplied and repeated, and sounder general conclusions arrived at than could be derived from the study of a few specimens of a declining race. At the same time the great improvement in communications, which has brought the wilder

tribes within reach of the scientific observer, has not exposed them to that contact with colonists of European blood which has proved so destructive to the aborigines of Australia and America. Those races of India, which, for want of a better name, we may for the present call non-Aryan, show no tendency to disappear, and in some parts of the continent their numbers appear to be on the increase. Without, therefore, omitting to record the characteristics of tribes which are dying out, like the Lepchas, or losing their identity, like the Mech and Dhimal, by absorption into larger groups, the ethnographer is by no means confined to the study of moribund types. Nor is he greatly troubled by the difficulties connected with language, which have proved so serious an obstacle to inquirers in other parts of the world. Interpreters are readily available, and a fair knowledge of the common Indian vernaculars will be found sufficient for the elucidation of the customs of all but the wildest tribes.

In these ways India offers special facilities for the systematic collection of ethnographical data on a large scale, and for testing these data by repetition and comparison to any extent that is considered desirable. But this is not all. Not only do the administrative conditions of the country lend themselves readily to the collection of evidence, but the social system is so constituted as to render that evidence peculiarly valuable and telling. In Europe, and in most parts of the world, where anthropological enquiries have been pursued, the prevalence of *métissage*, or the crossing of races, constantly tends to complicate the investigations and to obscure and confuse the results. There is nothing to prevent the union "of the blond Kymri with the dark-haired dweller on the Mediterranean, of the brachy-cephalic Celt with the dolicho-cephalic Scandinavian, of the tiny Laplander with the tall Swede."¹ In fact, all the recognised nations of Europe are the result of a process of unrestricted crossing which has fused a number of distinct tribal types into a more or less definable national type. In India, whatever may have been the case centuries ago, nothing of this sort is now possible. The institution of caste breaks up the population of the continent into a countless number of mutually exclusive aggregates of homogeneous composition, and forbids a member of one group to marry within any group but his own. The result of this application to marriage of the primitive principle of *Taboo* is to make differentiation rather than integration the dominant tendency in society; and while the existing groups maintain their exclusiveness, any deviation from the prescribed standard of social or ceremonial propriety is apt to become the occasion for the form-

¹ Topinard, "Éléments d'Anthropologie Générale," Paris, 1885, p. 203.
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ation of a new aggregate. Illustrations drawn from other societies are not easy to devise, as nothing exactly resembling caste appears to have been developed anywhere but in India. The instances commonly cited as parallel fall far short of exact resemblance. The Egyptian occupational divisions were not endogamous: the mediæval restrictions on intermarriage between members of different ranks in society were, as the story of Philippine Welzer shows, not absolute. But leaving history on one side, let us suppose that the numerous German tribes mentioned by Tacitus had been organized on the principle of caste, and had adhered to it all along, and endeavour to see what some of the consequences would be at the present day. In the first place, the tribal names and grouping would have been stereotyped and perpetuated, and each tribe would be endogamous—that is to say, a man of the Chatti would only be able to marry a woman of his own tribe, and could on no terms marry a Cheruscan or a Semnonian woman. Liaisons with members of other groups would of course occur, for no system can wholly eliminate natural instincts; but if the working principle of caste were consistently maintained, their offspring would be relegated to a separate subdivision, which would probably bear a name more or less suggestive of mixed descent. So far it will be said the bond is one of race, and the prohibition on intermarriage merely seeks to maintain the purity of the original stock; for primitive people cannot be expected to appreciate the virtues of crossing, and regard all strangers as natural enemies. But the principle of caste once set working does not stop here, but catches at any pretext to subdivide the original stock. If a few families of Chatti left the tribal settlements between the Rhine and the Weser, and found for themselves new homes in Bavaria or Bohemia, the change of domicile would probably debar them from the privilege of taking wives from the parent tribe, and would compel them to form a fresh matrimonial group for themselves. Again, if the original occupation of a tribe were hunting, and some took to agriculture; or if the original occupation were agriculture, and some became weavers or potters, the difference of profession (being held by a sort of unconscious fiction to be equivalent to the difference of race, which is the true basis of the system), would lead to the marking out of a new matrimonial aggregate. Last of all, religion may step in to create a further set of complications by ordaining that members of particular sects may or may not intermarry, or by giving rise to fresh groups which set up matrimonial arrangements of their own. This cause, however, has not operated in India on so large a scale as might perhaps have been expected. Differences of religious practice within the limits of Hinduism do not necessarily affect

the *jus connubii*, and some castes, among whom we may instance the Agarwāls and Oswāls, allow intermarriage between Hindus and Jains.

A society thus organized, whatever may be its social and political peculiarities, clearly offers in some respects a peculiarly favourable field for anthropological research, especially for that branch of the science which is known as anthropometry. An institution like caste, which seeks to eliminate crossing, and works with tolerable success towards that end, may be expected to preserve with the minimum of alteration whatever distinct types were in existence when restrictions on marriage first began to take effect ; and methods of observation which profess to ascertain and record types of physical development may for this reason be supposed likely to yield peculiarly clear and instructive results. When, moreover, those methods themselves are still in some respects in the experimental stage, and are admitted to stand in need of testing by application to large numbers of subjects, the argument for selecting an area where the chief source of confusion is virtually eliminated, gains considerable strength. Professor Topinard, in his work on the *Elements of Anthropology*,¹ lays stress on the difficulties which he experienced in Algeria in his attempt to obtain representative specimens of the two fundamental types—the Arab and the Berber. He describes how the crossing between Berbers, Arabs, blonds of the epoch of the Dolmens, Negroes, and Jews, had at the time of his visit to the country obscured the original types to such a degree that he found it difficult to reconstruct them. Had M. Topinard conducted similar experiments in Bengal, he would have had no reason to complain of the indistinctness of the types presented to him, or of the difficulty of obtaining subjects ; and it is for these reasons that India may be commended to the notice of those European ethnologists who prefer to collect their facts at first hand, and do not rely solely upon information gathered from books.

An attempt has recently been made to approach the study of Indian ethnology through the methods which have been employed by European observers in other parts of the world. In August, 1882, while the statistics of the census of 1881 were still under compilation, the Census Commissioner for India suggested that lists should be drawn up for each district showing separately the castes and occupations found there, and that inquiries should be instituted locally regarding any special caste and occupation about which further information might seem desirable. The Census Commissioner's proposals were generally approved by

¹ "Eléments d'Anthropologie Générale," p. 205.

the Government of India, and commended by them to the various provincial Governments with whom the initiative in such matters necessarily rests; but in no province except Bengal was it found possible to set on foot any large scheme of original research. Early in 1884 the Government of Bengal took the matter up, and in February, 1885, I was appointed for a period of two years, afterwards extended to three, to conduct an inquiry into castes and occupations throughout Bengal. No specific instructions were given to me, and it was understood that I was at liberty to adopt any line of investigation that I thought likely to yield interesting results. After making some experimental enquiries in Behar and North-Eastern Bengal and preparing a provisional scheme, I visited Lahore for the purpose of conferring with Mr. Denzil Ibbetson, of the Bengal Civil Service, and Mr. John Nesfield, Inspector of Schools in Oudh, from whom I obtained most valuable advice and assistance. One chief object of our deliberations was to secure, so far as might be possible, that ethnographical researches carried on in different provinces of the Bengal Presidency should proceed on the same general lines, in order that their results might be of some service to students of comparative ethnology in Europe. We considered the question of the best means to be adopted to collect original data in addition to the facts already on record in books, official reports, and publications of learned societies. For this purpose two sets of questions were drawn up—a general and a special series. The general series was framed with the object of bringing out, by as few and as simple questions as possible, the leading characteristics of any particular caste. The special series went into more detail, and attempted to cover the main heads of ethnographical inquiry in India. Our endeavour throughout was not so much to strike out new lines of research, as to adapt the methods already sanctioned by the approval of European men of science to the special conditions which have to be taken account of in India. Considerable use was made of the series of questions or heads of inquiry prepared by a Committee of the Anthropological Institute of Great Britain and Ireland in 1874, and to this doubtless is owing the fact that when the proceedings of the Conference were submitted by me for criticism to a number of scientific experts and learned societies in Europe, I received comparatively few complaints that subjects had been omitted or inadequately dealt with.

The scheme of inquiry sketched by the Conference covered a far wider range than can have been contemplated by the Census Commissioner or the Government of India. But this extension was found to be unavoidable directly the attempt was made to give effect to the general idea thrown out by Mr. Plowden. In

dealing with the intricate fabric of social usage it is difficult to define the component parts of the main subject closely enough to distinguish minutely the point where administrative utility fades away into scientific interest. Most of all in the East, where religion, law, custom, and morality, are all inextricably mixed and jumbled up together, would the attempt to attain any such precision be futile and misleading. It was understood, therefore, from the first, that the objects to be aimed at in the inquiry were partly scientific and partly administrative, and the Government of Bengal determined to publish and circulate the questions framed by the members of the Lahore Conference, and to enlist the aid of the district officers and others who were in a position to help in obtaining answers to them. Experience has shown that a single person can do very little towards collecting the requisite information within a given time. To elicit facts by oral inquiry is necessarily a lengthy process, and accuracy can only be secured by testing the statements of individuals or groups of individuals by numerous independent observations. On the other hand, it was essential that no more labour than was absolutely necessary should be thrown upon the regular administrative staff, and particularly upon the district officers, who always have their hands full of urgent executive work. Their influence, however, was from the first brought to bear, and through their agency, supplemented by a good deal of personal inquiry and correspondence, were secured the services of nearly 200 official and non-official correspondents scattered over every district of Bengal, and communicating in their turn with an indefinite number of representatives of the tribes and castes which formed the subjects of investigation.

In organizing the inquiry the object kept in view throughout was to multiply independent observations and to give as much play as possible to the working of the comparative method. The local correspondents were instructed to extend their inquiries over a wide field, to mistrust accounts published in books, to deal with the people direct, and to go for their information to the persons most likely to be well informed on questions of custom, such as priests, marriage brokers, genealogists, and headmen of castes, tribes and smaller groups. Correspondents were invited to clear up discrepancies thus brought to notice, and frequently an entire report was sent back, with marginal annotations, for further inquiry upon points which appeared to be doubtful. As the inquiry proceeded, several special subjects were taken up and examined in circular letters addressed to all correspondents with the object of summarizing the general results ascertained up to a certain stage, and

thus indicating lines of inquiry which might lead to fuller results. Among the subjects thus dealt with may be mentioned the working of the rule of exogamy, which proved to be considerably more intricate than had at first been supposed; the order of social precedence and the considerations by which it is determined; the status of different castes in relation to the land and to the curious tenures held on terms of police service in certain districts, and their comparative aptitude for emigration to the tea districts of Assam and the various Colonies which employ coolie labour.

During several years of district work in Chota Nagpore, a region peculiarly rich in survivals of archaic usage, and again, while organizing the Ethnographic Survey, some special opportunities have come in my way of observing the progress of the great religious and social movement described by Sir Alfred Lyall as "the gradual Brahmanising of the aboriginal, non-Aryan, or casteless tribes."¹ That this movement is progressing on a large scale is beyond doubt; but it by no means maintains a uniform character throughout its sphere of action, and it includes in Bengal at least four distinct processes, which may be analysed as follows:—

1. The leading men of an aboriginal tribe, having somehow got on in the world and become independent landed proprietors, manage to enrol themselves in one of the leading castes. They usually set up as Rajputs; their first step being to start a Brahman priest, who invents for them a mythical ancestor, supplies them with a family miracle connected with the locality where their tribe are settled, and discovers that they belong to some hitherto unheard-of clan of the great Rajput community. In the earlier stages of their advancement they generally find great difficulty in getting their daughters married, as they will not marry within their own tribe, and Rajputs of their adopted caste will of course not intermarry with them. But after a generation or two their persistency obtains its reward, and they intermarry, if not with pure Rajputs, at least with a superior order of manufactured Rajputs, whose promotion into the Brahmanical system dates far enough back for the steps by which it was gained to have been forgotten. Thus a real change of blood may take place; while in any case the tribal name is completely lost, and with it all possibility of accurately separating this class of people from the Hindus of purer blood, and of assigning them to any particular non-Aryan tribe. They have been absorbed in the fullest sense of the word, and henceforth pose, and are locally accepted, as high-caste Hindus. All

stages of the process, family miracle and all, can be illustrated by actual instances taken from the leading families in Chota Nagpore; but such details would be irrelevant to my present purpose.

2. A number of aborigines embrace the tenets of a Hin'cu religious sect, losing thereby their tribal name and becoming Vaishnabs, Ramayats, and the like. Whether there is any mixture of blood or not will depend upon local circumstances and the rules of the sect regarding intermarriage. Anyhow the identity of the converts as aborigines is usually, though not invariably, lost, and this also may therefore be regarded as a case of true absorption.

3. A whole tribe of aborigines, or a large section of a tribe, enrol themselves in the ranks of Hinduism under the style of a new caste, which, though claiming an origin of remote antiquity, is readily distinguishable by its name from any of the standard and recognized castes. Thus the great majority of the Kochh inhabitants of Rungpore now invariably describe themselves as Rajbansis or Bhanga-Kshatriyas, a designation which enables them to represent themselves as an outlying branch of the Kshatriyas who fled to North-Eastern Bengal in order to escape from the wrath of Parasu-Ráma. They claim descent from Raja Dazarath, father of Rama; they keep Brahmans, imitate the Brahmanical ritual in their marriage ceremony, and have begun to adopt the Brahmanical system of *gotras* or exogamous groups. In respect of this last point they are now in a curious state of transition, as they have all hit upon the same *gotra* (Kasyapa), and thus habitually transgress the primary rule of the Brahmanical system, which absolutely prohibits marriage within the *gotra*. But for this defect in their connubial arrangements—a defect which will probably be corrected in a generation or two, as they and their *purohits* rise in intelligence—there would be nothing in their customs to distinguish them from Aryan Hindus, although there has been no mixture of blood, and they remain thoroughly Kochh under the name of Rajbansi.

4. A whole tribe of aborigines, or a section of a tribe, become gradually converted to Hinduism without, like the Rajbansis, abandoning their tribal designation. This is what is happening among the Bhumij of Western Bengal (Manbhum, Singbhum, Midnapore, and Bankura). Here a pure Kolarian race have lost their original language (Mundári), and now speak only Bengali: they worship Hindu gods in addition to their own (the tendency being to relegate the tribal gods to the women), and the more advanced among them employ Brahmans as family priests. They still retain a set of totemistic exogamous subdivisions closely resembling those of the Mundas and the Sonthals, but they

are beginning to forget the totems which the names of the subdivisions denote, and the names themselves will probably soon be abandoned in favour of more aristocratic designations. The tribe will then have become a caste, and will go on stripping itself of all customs likely to betray its true descent. The physical characteristics of its members will alone survive. After their transformation into a caste, the Bhumij will be more strictly endogamous than they were as a tribe, and even less likely to modify their physical type by intermarriage with other races.

There is every reason to suppose that the movement of which certain phases are roughly sketched above, has been going on for many centuries, and that, although at the present day its working can probably be most readily observed in Chota Nagpore, the Orissa hills, and parts of Eastern and Northern Bengal, it must formerly have operated on a similar scale in Bengal Proper and Behar. The well-known tenth chapter of Manu, which endeavours to account for the existence of the non-Aryan castes by representing them as the offspring of marriages between the four original castes, gives clear indications that in Manu's time, fixed by Burnell at 500 A.D., some of the non-Aryan races had already begun to intrude upon the Brahmanical caste system, while others were still in the tribal stage. Arguing from facts now observable, it seems likely that some of the castes alleged by Manu to be the result of more or less complicated crosses between members of the four original castes or their descendants, are really tribes which had lost their identity like the Rajbansis; for at the present day, if we look merely to customs, ceremonies, and the like, we find in the majority of cases that the admission of a tribe into the charmed circle of Hinduism results after a generation or two in the practical disappearance of the tribe as such. Its identity can no longer be traced by direct inquiry from its members, or inferred from observation of their usages. The Rajbansi and the Bhumij are instances of tribes in an early stage of transition, whose antecedents can be accurately determined. Later on not only do distinctive customs fall into disuse, but the tribe itself, after its promotion to the rank of a caste, breaks up into a number of endogamous groups, each of which practically forms a separate caste. But even in this extreme case the physical characteristics which distinguished the tribe tend on the whole to be preserved: and it is this persistence of the type which accounts for the differences of feature, which, though only definable by scientific methods, are marked enough to render it possible within certain limits to make a fair guess at a man's caste from his personal appearance.

These general impressions regarding the differences of physical

type observable within the range of the recognized caste organisation, coupled with the difficulty of throwing much light upon the true origin of the lower and intermediate castes by collating customs and ceremonies which they have borrowed in the most liberal fashion from the higher castes, suggested to me the possibility of applying to the leading tribes and castes of Bengal the methods of recording and comparing typical physical characteristics which have yielded valuable results in other parts of the world. Those methods might, it seemed, enable us to detach considerable masses of non-Aryans from the general body of Hindus, and to refer them, if not to the individual tribes to which they originally belonged, at least to the general category of non-Aryans, and perhaps to such specific stocks as Kolarian, Dravidian, Lohitic, Thibetan, and the like. If, for example, in Europe, where the crossing of races constantly obscures their true affinities, the examination of statistics drawn from physical measurements has been found to throw light upon the distribution of different race stocks in the population, a similar analysis of the leading tribes and castes in Bengal, where crossing operates only on a comparatively small scale, would *primâ facie* appear likely to enable us to determine the divergence of each of these aggregates from known Aryan or non-Aryan types. Such an analysis would, it was thought, be regarded with approval by the leaders of the Hindu community in all parts of Bengal, among whom both the orthodox and the advanced lay considerable stress upon the purity of their Aryan descent: it would appeal in some measure to scientific men in Europe, and the results would command whatever political value may attach to the demonstration that a given population either is or is not composed of homogeneous ethnic elements.

Starting with this general idea, I wrote to Professor Flower explaining the nature of the inquiry on which I was engaged, and the particular difficulty which I desired to overcome, and asked for his advice as to the character and number of the measurements to be taken, the apparatus which should be used, and the forms in which the results should be recorded. In a long letter discussing the subject very thoroughly, Professor Flower was good enough to give me most valuable general advice as to the most profitable line of inquiry to adopt, while for fuller instructions concerning the mode of operations to be followed in detail he referred me to the exhaustive work, "*Les Eléments d'Anthropologie Générale*," by Dr. Paul Topinard, Professor of the School of Anthropology, and Secretary to the Anthropological Society of Paris. Having satisfied myself that Professor Topinard's instructions for dealing with living subjects, and the instruments prescribed by him were applicable

to Indian conditions, I proceeded after making some experimental measurements in Rangpur, to frame a complete scheme for giving effect to his system. This scheme was submitted to Professors Flowers and Topinard for criticism, and after having received their approval, was sanctioned by the Government of Bengal, the services of Civil Hospital Assistant Babu Kumud Behari Samanta, then attached to the Tibet Mission, being placed at my disposal for the purpose of taking measurements. After some experience had been gained in the working of the system in Bengal, proposals were drawn up for extending it to other parts of India. In the North-West Provinces and Oudh, Sir Alfred Lyall sanctioned a special grant of Rs. 1,000 for instruments, measuring agency, &c., and a fine series of measurements were taken by Chandi Singh, an expupil of the Barampur Medical School, under the supervision of Mr. J. C. Nesfield, Inspector of Schools for Oudh, himself a high authority upon the castes of that part of India. A small, but very interesting set of measurements was also taken in the Panjab by Civil Hospital-Assistant Aláuddin, under the supervision of Deputy Surgeon-General Stephen. In every case the measurers were taught the use of the instruments by me, and were supplied with printed instructions, defining the procedure with extreme minuteness of detail, and discussing at length a variety of difficulties which experience had suggested to me.

It will be seen that out of the proposal merely indicated by the Census Commissioner in 1882, two distinct lines of research have been developed, namely: (1), an ethnographic inquiry into the customs of all tribes and castes in Bengal, which either form a substantial proportion of the population of any district, or though numerically insignificant, are specially interesting from the scientific point of view; and (2) an anthropometric inquiry according to Professor Topinard's system, into certain of the physical characteristics of selected tribes and castes in Bengal, the North-West Provinces, Oudh, and the Panjab. The materials collected under these heads, although falling lamentably short of what a scientific standard of completeness would demand, have nevertheless reached a stage at which it becomes clear that it would be unwise to defer publication any longer in the hope of more fully working out the numerous problems which press for solution. Meanwhile, pending the final publication of the four unavoidably bulky volumes in which the results of the ethnographic survey are embodied, I may be permitted to say that the present opportunity of laying before the Anthropological Institute a brief statement of some of the chief

conclusions which the inquiry seems to indicate is especially welcome. The criticism thus elicited will, I am confident, be of the utmost service to me in completing the work which still remains to be done.

I have already stated that the anthropometric branch of the survey was conducted on the system prescribed by Professor Topinard in his "*Eléments d'Anthropologie Générale*." From the numerous measurements suggested by him twelve were selected, and to these were added, under Professor Flower's advice, the bimalar and nasomalar dimensions recommended by Mr. Oldfield Thomas in his paper on the Torres Straits Islanders published in the "*Journal of the Anthropological Institute*" for May, 1885. These fourteen measurements were taken for fifteen castes and tribes in Bengal Proper, five in the Chittagong Hills, ten in the Darjeeling Hills, ten in Behar, seventeen in Chota Nagpore, twenty-three in the North-West Provinces and Oudh, and nine in the Panjab, in all eighty-nine distinct groups, comprising nearly 6,000 persons. The results have been tabulated in the usual form, and with certain introductory and explanatory matter fill two large octavo volumes.

The standard theory of the making of the Indian people is well known, and need not be elaborated at length. It is believed that a tall, fair-complexioned dolicho-cephalic and presumably lepto-rhine race, whom we have now Professor Sayce's authority for calling Aryans, entered India from the north-west and slowly fought their way, conquering and colonizing down the valleys of the great rivers. At an early stage of their advance they came into collision with a black snub-nosed race, who were partly driven away into Central and Southern India, where we find their descendants at the present day, and partly absorbed by the conquerors. Some writers, notably Colonel Dalton and Mr. J. F. Hewitt, discover among the remnants of the black race two distinct types or groups of tribes, known as the Dravidian and the Kolarian. The Dravidians are supposed to have entered India from the north-west, and the Kolarians from the north-east, and Mr. Hewitt, in a paper published in the *Journal of the Royal Asiatic Society*, goes so far as to speak of the latter as Mongoloid.

No one can have glanced at the literature of the subject and in particular at the Vedic accounts of the Aryan advance, without being struck by the frequent references to the noses of the people whom the Aryans found in possession of the plains of India. So impressed were the Aryans with the shortcomings of their enemies' noses that they often spoke of

them as “the noseless ones,” and their keen perception of the importance of this feature seems almost to anticipate the opinion of Dr. Collignon that the nasal index ranks higher as a distinctive character than the stature or even than the cephalic index itself. In taking their nose then as the starting point of our present analysis, we may claim to be following at once the most ancient and the most modern authorities on the subject of racial physiognomy.

As measured on the living subject, the nasal index consists of the relation of the maximum breadth of the nose at its base outside the nostrils to its total height from the nasal spine to the root. It is expressed in the form of a percentage, the height of the nose being taken at 100. In a paper published in the “*Revue d'Anthropologie*” in January, 1887, Dr. Collignon proposes the following classification and nomenclature of the index :—

Ultra leptorhine	40 and under.
Hyper leptorhine	40 to 54·9.
Leptorhine	55 to 69·9.
Mesorhine	70 to 84·9.
Platyrrhine	85 to 99·9.
Hyper platyrrhine	100 to 114·9.
Ultra platyrrhine	115 and over.

In the first place it will be convenient to distinguish the extreme types which are to be found within each of the three main groups. Under the head of platyrrhine the following are the highest tribal averages :—

100 Malè or Male Paháriá, also called Sauria or Sámil Paharia of the northern hills of the Santál Parganas, a very peculiar tribe usually classed as Dravidian	94·5
100 Mál Paháriás (distinct from the tribe last mentioned) inhabiting the southern hills of the same district	92·9
21 Korwas, a wild and shy tribe of Chota Nagpore	92·5
100 Mundas, one of the most characteristic Kolarian tribes of Chota Nagpore	89·9
100 Kharwár of Chota Nagpore	89·7
100 Bhuiyas of Chota Nagpore, Dravidian... ..	88·7

Turning now to the opposite extreme there are among the leptorhine group :—

13 Gujars, a pastoral tribe of the Panjab	66·9
57 Lepchas of the Darjeeling Hills, a Mongolian tribe claiming to be the aborigines of Sikkim... ..	67·2

80 Patháns of the Panjab	... ..	68·4
80 Sikhs of the Panjab	... ..	68·8
33 Awans, a trading caste of the Panjab	... ..	68·8
60 Biloches of Bilochistan	... ..	69·4
Under the head mesorhine we have:—		
19 Machhis, a fishing caste of the Panjab	... ..	70·0
100 Kayasths, the writer caste of Lower Bengal	... ..	70·3
100 Bengal Brahmans	... ..	70·4
27 Arora, a trading caste of the Panjab claiming equality with the Khatris	... ..	71·2
36 Tibetans of Sikkim	... ..	71·4
26 Bábhans of the North-West Provinces	... ..	73·0

Returning to the platyrrhine group, I wish to lay special stress upon the fact that all the tribes included in it are perfectly compact and vigorous aggregates. All are strictly endogamous, three have a strong communal organisation of their own, and none show any signs of dying out or of becoming absorbed into other groups. Although a trained observer may sometimes be able to distinguish members of particular tribes, all the six tribes which I have mentioned conform in the main to a single physical type which is absolutely different from that of the average Hindu of the plains of Northern India. Putting aside for the moment the minor tribal characteristics which skilled observers profess to be able to detect, it may safely be said that the people I have mentioned are all of very dark complexion, the colour of the skin ranging from dark brown to a peculiar charcoal-like black, which is very striking. Their stature is low and their build is sturdy. Their appearance, in fact, is precisely that of the black, noseless, squat *Dasyus* described in the Vedas. It may be added that they appear to have great powers of resisting jungle fever, that most of them emigrate readily to the Indian tea districts of Assam and to the West Indies, and that the work of opening up the remotest and most unhealthy tea plantations of Assam has been done by them and by cognate tribes.

In respect of certain characteristic customs the platyrrhine group are equally distinct from the higher and intermediate strata of the population. Their system of exogamy is based upon totems, not on the eponymous or local groups which we find a few stages higher up. As a rule their daughters are married as adults; a bride-price is paid; and there are no signs of the bridegroom-price so common among the higher castes in India. Widows are allowed to marry again, and are usually expected to marry their late husband's younger brother. Divorce is readily allowed; divorced women may marry again, virginity

is little prized, and the relations of the sexes are characterised by considerable laxity. Their religion is of the type which, for want of a better name, we may call animistic, its leading idea being that man is compassed about by a multitude of powers (I prefer not to call them spirits) mostly destructive and malevolent, which require constant propitiation in some material form. This is the real working belief of the six tribes which I have named, though two of them—the Bhuiyas and Kharwars—have added to it a slight and partial veneer of Hinduism.

The leptorhine and mesorhine groups include, with two exceptions, the social aggregates among which we should *prima facie* expect to find the largest revival of Aryan characteristics. The exceptions are the Lepchas and Tibetans of Sikkim, the former of whom are leptorhine at 67·2, while the latter are mesorhine at 71·4. For both groups, however, the naso-malar index prescribed by Mr. Oldfield Thomas denotes their Mongolian origin, and places them outside the Indian series of groups. For the rest the only point deserving special notice appears to be the high place in the mesorhine group taken by the Brahmans and Kayasths of Bengal. This seems to bear out the traditional account of the north-western origin of these castes and to refute the not uncommon opinion that they are mainly of non-Aryan descent. The latter conjecture indeed appears to rest upon no more solid basis than the general impression that the Bengal Brahmans are as a class darker than the Brahmans of the North-West Provinces. The impression may be correct; but colour is hard to judge, and no satisfactory means of recording its gradations has so far as I know yet been devised. Summing up the entire body of evidence furnished by the nasal index we may say that it establishes the existence in India of two widely distinct types, the one platyrhine to a degree closely approaching to the negro, and the other leptorhine in much the same measure as the population of Southern Europe. Between these extremes we find a number of intermediate types, the physical characteristics of which suggest the inference that they must have arisen from the intermixture of members of the extreme types and their descendants. It is true that the rigid enforcement of the caste principle at the present day renders any such intermixture impossible, but it may be gathered from the account of the caste system given in the so-called Institutes of Manu that the rule of endogamy was less stringent in earlier times.

The most notable feature of these statistics of the nasal index is, however, their correspondence with—I should perhaps say their concomitant variation in relation to—two other sets of facts independently ascertained. I mean first the order of social

precedence and secondly the character of the exogamous subdivisions by which the matrimonial arrangements of every caste are regulated. Take the fifteen castes of Bengal Proper, the two castes of Behar, the seventeen castes of Chota Nagpore, and the twenty-three castes of the North-West Provinces for which this index has been measured, arrange them in the order of the nasal index, putting the lowest or most leptorhine index at the top, and it will be found that the order thus arrived at corresponds substantially with the order of social precedence. Everywhere the Brahman Kayasth and Rajput stand at the top of the list; everywhere the Chamar and Musahar are at the bottom. Within certain geographical boundaries it may be laid down at least as a working hypothesis, if not as an absolute law, that the social position of a caste varies inversely as its nasal index. I say within certain boundaries, because the figures for the nine castes measured in the Panjab do not appear to conform to the rule. But with regard to the Panjab it is possible that fuller inquiry may show either that the same law holds good, or that its disappearance marks the limit beyond which there has been little or no intermixture with the platyrhine type. The existing statistics are clearly inadequate. I may explain that the Panjab government were in such extreme financial difficulties when my inquiries were going on that they were unable to give any assistance or even to pay for the necessary instruments, and I owe the few figures we have to the exertions of Dr. Stephen, Sanitary Commissioner of the Panjab and the voluntary labour of Alauddin, a Civil Hospital-Assistant in Lahore.

The correspondence between the nasal index and the character of the exogamous subdivisions of various castes is equally striking. In the course of the ethnographic survey, special pains were taken to ascertain these groupings, and long lists of them have been arranged and classified for publication. These, as I shall afterwards have occasion to explain, are probably the most valuable social data that can now be collected. For the present I have only to point out that in Bengal Proper castes with a platyrhine index have totemistic exogamous divisions; that castes with indices between 85 and 80 have a mixture of totemistic eponymous and local groups; the tendency being as Mr. Andrew Lang has excellently expressed it, for the totem to "slough off," as the caste goes up in the world; that castes with indices between 80 and 75 have a mixture of local and eponymous sept-names, and that castes below 75 have eponymous septs. In Behar and the North-West Provinces, the totem is not so prominent, the influence of the higher castes has been stronger, and eponymous groups are found associated with higher indices than is the case in Bengal. Conversely in Chota

Nagpore, the totem-groups hold their own undisputed down to an index of 79, and possibly lower. These variations admit of being readily accounted for by reverence to local conditions, but I will not attempt to analyse them further here. Enough has been said to prove that a high average nasal index is usually, I may even say invariably, found along with low social position and totemistic subdivisions, while conversely a low index denotes high social rank and a system of eponymous subdivisions.

Reference has already been made to the naso-malar index devised by Mr. Oldfield Thomas, as a substitute for Professor Flower's naso-malar angle, and described in Mr. Thomas's paper on a collection of human skulls from Torres Straits, published in the "Journal of the Anthropological Institute" for May, 1885. In September, 1886, Professor Flower kindly drew my attention to this index as the only method by which the relative preponderance of a Mongolian or Caucasian element can be detected. He added, "If you can apply it to your border tribes—Lepchas, &c.—and then see if the character crops out in any of the hill tribes of Central India, I shall be greatly interested; in fact, for this special point, the supposed affinity of the latter with the Mongolian races, I would prefer this to any other measurement, as platyopy is certainly far more characteristic than brachycephaly of these races."

This index has been taken for 54 castes and tribes, viz., 8 in Bengal Proper, 5 in the Chittagong Hills, 10 in the Darjeeling Hills, 5 in Behar and the North West-Provinces, 17 in Chota Nagpore, and 9 in the Panjab. The average for the Panjab groups is 116, ranging from 113·1 in the Khatri, a trading caste of Aryan type, to 117·9 in the Biloch, 117·1 in the Pathan, and 116·6 in the Sikh. In the Chittagong Hills on the other hand, the Kuki have an index of 106·2, and the Chakmas of 106·4, while the index of the Maghs is 107·7. Of the Darjeeling tribes the Limbu average 106·9, the Khambus 107·1, the Lepchas 108·1. Forty-nine Tibetans of Tibet yield an average index of 108·8, 36 Tibetans of Sikkim give 108·9, 19 Tibetans of Bhutan 109·1. The Newars, who claim to be the aborigines of Nepal, show an index of 101·2. In Bengal the Mál Paháriá have an index of 109·8, and the Malé of 110, while the Rajbansi or Kochh, a very large tribe recently promoted to the status of a caste, show an index of 110·8. Seventeen tribes of Chota Nagpore yield an average of 110·4, ranging from 107·6 in the Birhor to 114·2 in the Dom.

Among the large tribes we get the following results in ascending order—

Kharwar	...	...	...	109·4
Bhuiya	...	...	...	109·6

Santal	...	...	...	110·6
Munda	...	...	...	111·3
Oraon	...	...	...	113·6
Bhumij	...	...	...	113·8

As regards the known Mongolian tribes of the northern and north-eastern frontier, and the apparently Aryan races of the Panjab, the naso-malar index gives very clear and satisfactory results. Unlike most measurements taken on the living subject it appears to admit of comparison with cranial indices such as those given by Mr. Oldfield Thomas in the paper already referred to. I may venture, however, to suggest that the classification proposed by Mr. Thomas into—

Platyopic	=	rac	es	h	aving	i	ndices	b	elow	107·5,
Mesopic	=	"	"	"	"	"	"	"	107·5	to 110·0,
Pro-opic	=	"	"	"	"	"	"	"	above	110·0,

may require reconsideration, in view of the fact that the superior limit of the index appears from the Panjab figures to run in individual cases as high as 125 and over. In order to include such unquestionably Mongolian types as the Gurung tribe of Nepal, I should be inclined to extend platyopy to 109·9 or 110, to reckon mesopy from 110 to 112·9, and to count only indices of 113 and over as pro-opic. But it is perhaps premature to make any proposals of this sort until further data have been collected.

The bearing of the naso-malar index on the problem of the racial affinities of the black races of Chota Nagpore and Central and Southern India needs to be considered in the light of its relations to the cephalic and nasal indices. Judging from the naso-malar index alone, one would be inclined to say that the hypothesis of their Mongolian origin might be tenable. But when it is observed that a low naso-malar index, which in the Darjeeling and Chittagong tribes is always associated with a brachycephalic cranium, occurs among the so-called Dravidians and Kolarians in connexion with dolichocephaly and mesati-cephaly tending towards dolichocephaly, and that the most dolichocephalic types are also those which have the lowest naso-malar index, it is clear that some other explanation of their tendency to platyopism must be sought for. This conclusion is strengthened by the difficulty of reconciling their extremely dark colour and their nasal index approaching to that of the Negro with the theory of their Mongolian descent.

With the cephalic index I will deal very briefly, and will endeavour to abstain from reciting figures. Taking Bengal Proper as our starting point, we find on the eastern and

northern frontiers a fringe of brachycephalic races, intercourse with whom is more or less frequent according to the means of communication available at different seasons, the occasions for trade, and the varying political relations between the hill tribes and the dwellers in the plains. We observe also, among certain of the Bengal castes, a distinct tendency towards brachycephaly, which shows itself in the Mahommedans and Chaudals of Eastern Bengal (indices 78·0 and 78·1), is more distinctly marked in the Kayasths (78·3), and reaches its maximum in the Bengal Brahmans (78·7). Bengal, then, taken as a whole, exhibits a high range of mesaticephaly verging on brachycephaly. On the north-west and west of Bengal Proper lie Behar and Chota Nagpore, both mesaticephalic with a tendency towards dolichocephaly; but in the case of Behar, the Brahmans, unlike those of Bengal, belong to the latter or dolichocephalic type, while in Chota Nagpore the wilder non-Aryan races are the most dolichocephalic. Further up the Ganges valley the people of the North-West Provinces are wholly dolichocephalic, and the same may be said of the Panjab, with the exception of trans-Indus people, like the Páthan and Biloch.

These facts seem to afford some ground for the conjecture that the peculiar and characteristic type of feature which distinguishes the higher castes of Bengal Proper from the corresponding ranks of society in Northern and Western India may be due to an infusion of non-Aryan blood, derived, not from the black races of Central and Southern India, but from the brachycephalic Indo-Burmese stocks further east.

Another point to be noticed is that the dolichocephaly so conspicuous in the North-West Provinces, may be a mark of Aryan or non-Aryan descent according to the social standing of the caste in which it occurs. The Brahman of the North-West Provinces is dolichocephalic at 73·1, the Kol of the same area at 72·4; but it is impossible to suppose that the two groups have derived this characteristic from the same source, and the prevalence of dolichocephaly among the unquestionable non-Aryans of Chota Nagpore seems to afford a clue to the difficulty. The Kol gets his long head from the non-Aryan races to whom his colour and the proportions of his nose affiliate him, while the Brahman's dolichocephaly comes to him from the Caucasian stock.

Two more points out of the fourteen which have been observed demand a brief notice here. Cuvier's facial angle, as measured by Professor Topinard's goniometer, has recently been made the subject of an elaborate study by Dr. Collignon, who concludes that, notwithstanding the limited range of variation in the averages deduced from it, this angle is a measurement

of the first rank, because it expresses exclusively an ethnic characteristic, and the data which it furnishes are not correlated to any other character. I may add that Professor Topinard's goniometer, several of which have been made for me by Collin, of Paris, is an instrument of great accuracy, easy to work, and not at all liable to get out of order.

I select from the mass of data available the following cases of low and high averages:—

Low.				High.			
Magh of Chittagong Hills	..	63·5		Gujar of Panjab	..	..	70·7
Mahommedan of Eastern Bengal		63·7		Sikh	..	..	70·4
Lepcha of Darjeeling Hills	..	64·1		Biloch	..	..	70·3
Kayasth of Bengal	..	64·2		Rajput of N.W.P.	..	..	69·6
Bhumij of Chota Nagpore	..	64·3		Brahman of Behar and N.W.P.			68·7
Tibetan of Tibet	..	64·4		Brahman of Bengal	..	..	67·1

It will be seen that the half-dozen highest average indices include three tribes of the Panjab and north-west frontier, and the Rajputs and Brahmans of the Ganges valley. The other group is a curious medley of races among which it is difficult to account for the presence of the Bengal Kayasths, a caste of fairly high social position and considerable intellectual attainments.

The figures of stature are very interesting, but I have not space to devote to them more than a few passing remarks. The lowest average stature, 156·2 centimetres, is found among the servile weaving caste of Chota Nagpore; the highest, 171·6, among the Sikhs. The nine Panjab castes give an average of 168·4; twenty-three castes of the North-West Provinces show 163·5; ten of Behar, 163·0; fifteen of Bengal, 162·0; ten of the Darjeeling Hills, 161·2; eighteen of Chota Nagpore, 160·2; five of the Chittagong Hills, 159·2. In connection with the statistics of height, I venture to draw attention to the height and weight index, which shows the number of grammes per centimetre of height, and thus serves to distinguish certain types of figure. Again selecting extreme cases, I find that the Munda tribe of Chota Nagpore have an average index of 372·6, and the Tibetans of Sikkim, 370·7, while the trading Khatri caste of the North-West Provinces show 290·7. The Sikh index is 320·2, the Lepcha, 350·5, the Gurung, 331·6.

The foregoing analysis enables us to distinguish three main types in the population of India at the present day, viz:—

- I. A leptorhine, pro-opic, dolichocephalic type, of tall stature, light build, long and narrow face, comparatively fair complexion, and high facial angle. This type is most marked in the Panjab. Their exogamous groups are eponymous, names of Vedic saints or heroes.

- II. A platyrrhine, mesopic or nearly platyopic, dolichocephalic type, of low stature, thick-set made, very dark complexion, relatively broad face, usually low facial angle. This type is most distinct in Chota Nagpore and the Central Provinces. Its sections are totemistic, like those of North American Indians—that is, they are names of animals, plants, or artificial objects, to all of which some form of taboo applies.
- III. A mesorhine, platyopic, brachycephalic type of low or medium stature, sturdy build, yellowish complexion, broad face and low facial angle. This type is found along the northern and eastern frontiers of Bengal. Their exogamous groups are very curious, being mostly nick-names of the supposed founder of the sept, such as “the fat man who broke the stool,” and others less fit for publication.

Assuming that these three types may be taken to represent so many distinct races or stocks, the question then arises, can we in any way account for them or affiliate them to other known families of mankind? In the case of the brachycephalic and platyopic type no difficulty presents itself. All of the groups which come within this category are demonstrably of more or less pronounced Mongolian descent; and we may conveniently call them Mongoloid. The type, as I have already remarked, is essentially a frontier type, and its influence can in no case be traced far into the interior of India. The Kochh or Rajbansi, a large tribe of Bengal, who now pose as an outlying branch of the Rajputs, are indeed commonly supposed to have some strain of Mongolian blood among them, but I doubt whether this opinion is well founded. A slight degree of platyopy is, it is true, met with among them, but this may equally well be accounted for on the supposition of their affinity to the platyrrhine type.

Special interest attaches to the leptorrhine dolichocephalic type in view of Herr Karl Penka's recent advocacy, in “*Origines Ariacae*” and “*Die Herkunft der Arier*,” of the possible Scandinavian origin of the Aryans. If it be accepted that Herr Penka has proved the typical Aryan to be dolichocephalic, there would seem to be some grounds for believing that in the dolichocephalic leptorrhine type of the Panjab and north-western frontier at the present day we may recognise the descendants of the invading Aryans of 3,000 years ago, changed no doubt in hair, eyes, and complexion, but retaining the more enduring characteristics of their race in the shape of their head, their stature, and the finely cut proportions of their nose. Survivals of fair or rather reddish hair, grey eyes, and reddish blonde

complexion are moreover still to be found, as Penka has pointed out, and as I myself have seen, among the Kafirs from beyond the Panjab frontier. Any way the striking preponderance of dolichocephaly in the Panjab and the North-West Provinces and its gradual increase as we travel up the Ganges valley towards the traditional Aryan tract, tend both to strengthen Penka's hypothesis and to enhance the credibility of early Indian legends. These facts go also to show that Penka is mistaken in supposing that the Indian branch of the Aryans became brachycephalic on their way to India. Had this been so, the dolichocephaly which now distinguishes them could only have been derived from crosses with the black race, and the Aryans could hardly have become dolichocephalic in this way without also becoming platyrrhine.

Turning now to the platyrrhine type we may observe that the figures show the current distinction between Dravidians and Kolarians, on which stress has been laid by Dalton and others, to be a purely linguistic character not corresponding to any appreciable differences of physical type. We may claim therefore for these data that they have accomplished the task set before himself by Mantegazza in his "*Studi sull' Etnologia dell' India*," and "erased the Dravidian colour from the ethnic chart of India," though not precisely in the manner contemplated by the Italian anthropologist. The hypothesis of the north-eastern origin of the so-called Kolarians urged by Colonel Dalton and recently advocated by Mr. J. F. Hewitt, must also be abandoned as inconsistent with the dolichocephalic skull of the typical representatives of the group. Whatever the Kolhs may be, they certainly are not a Mongoloid race.

The remarkable correspondence between the gradations of type as brought out by certain indices and the gradations of social precedence further enables us to conclude that *community of race*, and not, as has frequently been argued, *community of function*, is the real determining principle, the true *causa causans*, of the caste system. Everywhere we find high social position associated with a certain physical type and conversely low social position with a markedly different type. The conclusion thus suggested is confirmed by evidence derived from the character of the exogamous divisions. Divisions of a totemistic and therefore more primitive character occur among tribes of a lower social position and of lower physical type, while divisions taking their names from saints or heroes, which indicate a more advanced stage of social development, are met with in endogamous aggregates of higher physical type and higher social position. It is difficult to see how this state of things could have resulted from the operation of the principle

laid down by Mr. Nesfield in his sketch of the Caste System of the North-Western Provinces and Oudh, that function and function alone has determined the formation of the endogamous groups which in India are called castes. Moreover, had the latter principle been the true motive power of the system, it is hard to understand why within a limited area subject apparently to similar social influences, we should find a large number of castes all following the occupation of agriculture in precisely the same way, but nevertheless insisting vigorously upon the essential differences of blood which in their view render intermarriage a thing impossible and inconceivable. The subject is too large and too intricate for me to attempt any detailed exposition of it here, and I must content myself with merely stating in general terms the conclusion, which the recent measurements appear to indicate, viz., that the Indian caste system is a highly developed expression of the primitive principle of *taboo* which came into play when the Aryans first came into peaceful contact with the platyrrhine race which we may provisionally call Dravidian. This principle derived its initial force from the sense of difference of race as indicated by difference of colour, and its great subsequent development has been due to a series of fictions by which differences of occupation, differences of religion, changes of *habitat*, trifling divergencies from the established standard of custom, have been assumed to denote corresponding differences of blood and have thus given rise to the formation of an endless variety of endogamous groups. As an illustration of some of the processes to which I refer, I may be permitted to analyse very briefly the internal structure of the Bagdi caste of Western Bengal.

The Bagdi have a nasal index of 80·5, and a cephalic index of 76·3. Their facial angle is 64·9. They stand at the bottom of the Hindu social system, and no member of the upper or middle classes can take water from their hands. Their exogamous subdivisions are partly totemistic, and partly eponymous, the latter groups having been borrowed from the low Brahmans who minister to their spiritual necessities as an outward and visible sign of their enrolment in the Hindu system. In the district of Bankura, where the original structure of the caste seems to have been singularly well-preserved, we find the Bagdis divided into the following endogamous sub-castes: (1) Tentulia, called after the tamarind tree; (2) Kasaikuliā, named from the Kasai river. These two groups work as masons, and also prepare the lime which is mixed with the betel leaves and areca nut chewed by all classes of natives of India. (3) Duliā Bagdis carry palanquins or *dulis*, and in common with the other sub-castes,

earn their livelihood by fishing, making gunny bags, weaving cotton, and preparing the red powder (*abir*) used in the Holi festival. The Bagdi fisherman uses the ordinary circular cast-net, but swings the net round his head before casting it, a practice which is supposed by the regular fishing castes of Bengal—Tiyar, Mál and Kaibarla—to be peculiarly dishonourable. Of the other sub-castes—there are nine in all—the Máchhuá and Mallametiá derive their name from fishing; the Kusmetia are called after the *Kusa* grass; the Ojha are, or are supposed to have been, the priests of the tribe. Among the Bagdis of Orissa the grotesque tale is told how, once upon a time, the gods being assembled in council, a goddess suddenly gave birth to three sons, and feeling embarrassed by the situation, hid the first under a heap of tamarind (*tentul*) pods, the second in an iron pan, and the third under a hermit's staff. From these vicissitudes of their infancy the children got the names which the sub-castes descended from them still bear. To us this apparently foolish story is of interest as marking the transition from the tribe to the caste. It can only have arisen when the Bagdis had in some measure cast in their lot with Hinduism, and had begun to feel the want of a mythical pedigree of the orthodox type. The mention of the tamarind pods in particular furnishes an excellent example of a myth devised for the purpose of giving a respectable explanation of the totemistic name Tentulia.

Within the sub-castes again are a number of exogamous sections, among which may be mentioned *Kásbak*, the heron; *Ponkrishi*, the jungle cock; *Salrishi*, or *Sálmáhh*, the *sál* fish; *Pátrishi*, the bean; and *Kachehap*, the tortoise. The totem is taboo to the members of the section—that is to say, a *Kásbak* Bagdi may not kill or eat a heron; a *Pátrishi*, like the Pythagoreans according to Lucian, may not touch a bean.

It is difficult for the average European to realise the gulf which separates the Bagdis and the platyrrhine group below them from the higher castes of the Hindu system. In some districts these outcast races are even excluded from the village schools, and everywhere they are looked upon as belonging to a different family of mankind.

In conclusion, I will state briefly what appear to be the most important results which the recent inquiries tend to bring out:—

I. They show that India is a peculiarly favourable field for anthropometric researches. The caste system, by prohibiting marriage outside the caste group, practically eliminates the element of *métissage* or crossing, which Topinard, Collignon, and other observers notice as confusing and impeding anthropometric observations in Europe. In other respects also India has great

advantages. The number of subjects available is virtually unlimited, and observations can be repeated and tested *ad libitum*.

The wilder races, such for instance as the Kols, are strong and numerous, and have not been affected by contact with European civilization. They are readily accessible, interpreters can be easily obtained, and the scientific inquirer, even if he know no Oriental language, would have little difficulty in pursuing inquiries on any line he might wish to follow up. I say this in the hope that members of this Society may be led to follow the prevailing fashion of making a winter tour in India. To any such enterprising ethnologist I can promise an abundant supply of fresh and interesting material.

II. Secondly, I think we may claim that the anthropometric method, and in particular the combination of that method with observations of social usage in the manner I have attempted to illustrate, promises to give us a scientific basis for Indian ethnology, and to enable us at the close of the next census to classify our results on a more or less rational system. It will be something if we can establish that the distinction between Dravidian and Kolarian races has reference solely to differences of language, and that the two groups belong to the same main stock.

III. Thirdly, the inquiry has drawn attention to the wide prevalence of totemism in India, and to the existence of several very singular modes of giving effect to the custom of exogamy.¹

IV. It also throws much light upon the practice of infant marriage and the rule that a widow may not take a second husband. It shows that these ordinances—the positive one that a man must get his daughter married before puberty on pain of losing caste himself, and the negative one that a widow, even if a virgin, may not marry again—are regarded almost universally as badges of social distinction. A caste which observes them is in the way of salvation and may hope to rise in the social scale; while a caste which disregards them is ranked with the platyrrhine Dravidians. Unhappily the form of infant marriage which is gaining ground is the Bengal form, which favours consummation even before puberty, and which tends to produce pregnancy at an abnormally early age. It would seem that such a custom must in the long run lead to physical degeneration, and must enhance the prevalence of those special diseases which Lady Dufferin's Fund endeavours to alleviate. So also with widows. As long as the prohibition of widow re-mar-

¹ See "Primitive Marriage in Bengal." "Asiatic Quarterly Review," July, 1886.

² See "Widow and Infant Marriage in Bengal." "Asiatic Quarterly Review," July, 1887.

riage remains a monopoly of the higher castes, the number of widows—large though it may be—does not amount to a serious social evil. But an indefinite extension of the prohibition by means of the imitative process now so rapidly going is not a prospect that can be regarded with indifference.

V. Finally, I have a practical suggestion to make which I would ask the Council of this Society to take into consideration. The British Association has already urged upon the Government of India the desirability of extending anthropometric observations to Bombay, Madras, and other parts of India, and has suggested that the exogamous and endogamous groupings of all tribes and castes should be recorded in the Census of 1891. This is good, so far as it goes ; but I should like to go still further, and attempt to initiate a permanent system of inquiry into custom throughout India. The system of circulating a set of questions and getting persons interested in ethnology to collect replies worked very well in Bengal, and I see no reason why it should not be extended to other parts of India. It would cost the Government next to nothing, and it offers the only prospect of ascertaining and recording a mass of interesting and instructive usage, which the spread of Brahmanism, favoured as it is by the extension of railways, is tending to obliterate. I propose then that the questions used in Bengal, which were based on those drawn up by a committee of the Anthropological Institute in 1874, should be revised by the Council with reference to Mr. Frazer's excellent series of questions and the various continental *questionnaires*, and that we should then approach the Government of India with a scheme for circulating them in India and collecting replies for the entire continent. In almost every district I believe we should find men ready to take up the work, and the data thus collected would be of the utmost value.

DISCUSSION.

Dr. G. B. LONGSTAFF enquired whether, in the case of the exogamous subdivisions described as existing in the Bagdi caste, the name of the subdivision went by the male or by the female side ; whether, for example, the children of a father belonging to the heron group and a mother belonging to the tortoise group would be herons or tortoises.

Dr. LEITNER and Dr. GARSON also joined in the discussion.

Mr. RISLEY explained that in all the exogamous groups which had come to his notice in Bengal the designation of the group, whether totem, eponym, or local name, descended in the male line, so that the children of a heron man by a tortoise woman would be herons and not tortoises. Traces of female kinship exist farther east in the Cossya hills, and some survivals may perhaps be found in Bengal itself.

NOVEMBER 25TH, 1890.

Professor W. H. FLOWER, C.B.; F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of HENRY BLACKWELL, Esq., of Milk Street, Cheapside, was announced.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

- From MRS. GALLENGER.—Un Viaggio a Nías. Di Elio Modigliani.
- From A. W. FRANKS, Esq., C.B., F.R.S.—Statement of Progress and Acquisitions made in the Department of British and Mediæval Antiquities and Ethnography of the British Museum in the year 1889.
- From the GOVERNMENT OF PERAK.—The Perak Government Gazette. Nos. 15-18, 20-27.
- From the GOVERNMENT CENTRAL MUSEUM, MADRAS.—Report for the year 1889-90.
- From the SECRETARY OF STATE FOR THE COLONIES.—Vocabulary of the Kiwai Language, British New Guinea.
- Inspection Tour of Fly River.
- Visit of Inspection to Island of Kiwai at Mouth of Fly River.
- Reports on a Tour of Inspection of the St. Joseph River district.
- From the REGISTRAR-GENERAL.—Statistics of the Colony of New Zealand, for the year 1888.
- From the GERMAN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—Archiv für Anthropologie. Neunzehnter Band. Drittes Vierteljahrsheft.
- From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1890. Heft 2, 3, 4.
- From the INDIA OFFICE.—Customary Law of the Tahsils of Moga, Zira, and Ferozepore. By E. B. Francis, Esq. (Settlement Officer).
- Epigraphia Indica and Record of the Archæological Survey of India. Part 5. October, 1889. Edited by Jas. Burgess, LL.D., C.I.E.
- From the GEOLOGICAL SURVEY OF NEW SOUTH WALES DEPARTMENT OF MINES.—Memoirs (Palæontological Series) :—
- No. 3.—Geological and Palæontological Relations of the Coal and Plant-Bearing Beds of Palæozoic and Mesozoic Age in

- Eastern Australia and Tasmania, with special reference to the fossil flora. By Ottokar Feistmantel, M.D., C.M.R.S., N. S. Wales, &c.
- No. 4.—The Fossil Fishes of the Hawkesbury Series at Gosford. By Arthur Smith Woodward, F.Z.S., F.G.S.
- No. 8.—Contributions to a Catalogue of Works, Reports, and Papers, on the Anthropology, Ethnology, and Geological History of the Australian and Tasmanian Aborigines. Part 1. By R. Etheridge, Junr., F.G.S.
- From the GEOLOGICAL SURVEY OF NEW SOUTH WALES DEPARTMENT OF MINES.—Records. Vol. i. Part 3. Vol. ii. Part 2.
- Annual Report of the Department of Mines, New South Wales, for the year 1889.
- From the AUTHOR.—A Trip Through the Eastern Caucasus, with a chapter on the Languages of the country. By the Hon. John Abercromby.
- Was America peopled from Polynesia? A study in comparative philology. By Horatio Hale.
- Mythology of the Menomoni Indians. By W. J. Hoffman, M.D.
- Remarks on Ojibwa Ball Play. By W. J. Hoffman, M.D.
- Saint Richard, the King of Englishmen, and his territory, A.D. 700–720. The Celt and the Teuton in Exeter. Paignton, Devon. By Thomas Kerslake.
- The Hunza and Nagyr Handbook. Being an introduction to a knowledge of the language, race, and countries of Hunza, Nagyr, and a part of Yasin. In two parts. Part 1. By G. W. Leitner, M.A., Ph.D., LL.D.
- The Testimony of Tradition. By David MacRitchie.
- Customs of Courtesy. By Garrick Mallery.
- Lake Dwellings of Europe. By Dr. Robert Munro.
- Races and Peoples. By Dr. Daniel Brinton.
- An Analysis of some of the Ocular Symptoms observed in so-called General Paresis. By Charles A. Oliver, M.D.
- Dictionary of the Language of the Micmac Indians. By the Rev. Silas Tertius Rand, D.D., LL.D.
- The Aborigines of Tasmania. By H. Ling Roth. Preface by Edward B. Tylor, Esq., D.C.L., F.R.S.
- Indications of Retrogression in Pre-historic Civilisation in the Thames Valley. By H. Stopes, F.G.S., F.R.Hist.Soc.
- Trade and Commerce in the Stone Age. By Sir Daniel Wilson, LL.D., F.R.S.E.
- Essai d'une classification des Races Humaines, basée uniquement sur les caractères physiques. Par M. J. Deniker.
- Étude sur la Rétroversion de la Tête du Tibia, et l'attitude humaine à l'époque quaternaire. Par L. Manouvrier.
- Pregiudizi e Superstizioni del Popolo Modenese. Contribuzione del Dott. Paolo Riccardi.
- Sopra un Cranio Deformato. Noto dell Dott. G. Sergi.
- Crani Siamesi. Pel Dott. G. Sergi.

- From the AUTHOR.—*La Giustizia sulla buona via e il giudizio su Emilio Caporali.* Dott. A. Zuccarelli.
- *Forma e dimensioni della Apofisi Coronioide nella Mandibola Umana.* Testi di Laurea del Dottor Cesare Biondi.
- *Sulle inserzioni dei Muscoli Masticatori alla Mandibola e sulla Morfologia del condilo nell'uomo.* Testi di Laurea del Dottor G. Parigi.
- From the AUTHORS.—*Les Races Exotiques à l'Exposition Universelle de 1889.* Par J. Deniker et L. Laloy.
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- *Proceedings of the United States National Museum. Vol. xii. 1889.*
- *Bulletin of the United States National Museum. No. 38.*
- *The Archæology of the Potomac Tidewater Region.* By Otis T. Mason. *The Palæolithic Period in the District of Columbia.* By Thomas Wilson.
- *The Human Beast of Burden.* By Otis T. Mason.
- *Cradles of the American Aborigines.* By Otis T. Mason. *With Notes on the artificial deformation of children among savage and civilised peoples.* By Dr. J. H. Porter.
- *Ethno-Conchology: a Study of Primitive Money.* By Robert E. C. Stearns.
- *Report on the Section of Steam Transportation in the United States National Museum for the year ending June 30, 1886.* By J. Elfreth Watkins.
- From the AMERICAN FOLK LORE SOCIETY.—*The Journal of American Folk Lore. Vol. iii. No. 9.*
- From the ANTHROPOLOGICAL SOCIETY OF WASHINGTON.—*The American Anthropologist. Vol. iii. Nos. 2, 3. 1890.*
- From the ROYAL ARCHÆOLOGICAL INSTITUTE.—*The Archæological Journal. Nos. 184-187. 1890.*
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- From the SOCIEDADE DE GEOGRAPHIA DE LISBOA.—*Indices e Catalogos a Bibliotheca.* Por A. C. Borges de Figueiredo.
- *Catalogos e Indices as Publicações.* Por Luciano Cordeiro.
- From the SOCIEDADE CARLOS RIBEIRO.—*Revista de Sciencias Naturaes e Sociaes. Vol. i. No. 4.*
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- From the IMPERIAL UNIVERSITY OF JAPAN.—The Journal of the College of Science. Vol. iii. Part 4.
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- Jaarboek. 1889.
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- Journal of the East India Association. Nos. 3, 4, 5. 1890.
- Proceedings of the Geologists' Association. Vol. xi. Nos. 7, 8. 1890.
- From the INSTITUTE.—Proceedings of the Canadian Institute, Toronto. Third Series. Vol. vii. Fas. 2.
- Proceedings of the Royal Colonial Institute. Vol. xxi. 1889-90.
- Transactions and Proceedings of the New Zealand Institute. Vol. xxii. 1889.
- Transactions of the Wagner Free Institute of Science of Philadelphia. Vol. iii. 1890.
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— Proceedings and Transactions of the Royal Society of Canada for the year 1889. Vol. vii.

— The Journal of the Proceedings of the Royal Society of Antiquaries of Ireland. Fifth Series. No. 2. Vol. i. 1890.

— Journal and Proceedings of the Royal Society of New South Wales. Vol. xxiii. Part 2. 1889.

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— The American Journal of Psychology. April, 1890.

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— *Timehri*. June, 1890.

— *L'Anthropologie*. Tome 1. Nos. 4, 5.

— *Revue Scientifique*. No. 26. Vol. xlv. Nos. 1–21. Vol. xlv.

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The following paper was read by the Author:—

The YOUROUKS of ASIA MINOR.

By THEODORE BENT, Esq., M.A.

THE study of the habits, customs, and origin of the nomad tribes of Asia Minor is an exceedingly complicated and difficult one. There is an undercurrent of secrecy and mystery about them all, an unwillingness to communicate to the passing stranger anything about themselves, their customs, and more especially their religious opinions. Outwardly, they are all Mohammedans, though in their wild nomad life they never see either a mosque or an imam. Last summer I gave the results of my enquiries into the religious tenets of the Ansairee who dwell in and around Tarsus, and the secrecy with which they enshroud their belief. Investigations amongst the Afshars, the Kizilbashi, and the Yourouks, lead me to imagine that this secret religion is not confined only to the Ansairee, but is the religion of nearly all the nomad races who wander to and fro in the mountainous districts between the Mediterranean and the Caspian.

This evening I will confine myself entirely to the Yourouks, and set before you what anthropological facts I collected whilst amongst them, and, I will here bear testimony to the value of the anthropological "Notes and Queries" which suggested most appropriate questions just at those moments of emergency when one's mind assumes a steady blank and refuses to act.

The Yourouks, who inhabit the southern coast of Asia Minor and the heights of the Taurus, are of two distinct races, of origins quite as far apart as the Greeks and the Bulgarians of the Balkan peninsula. The Turks, however, have not distinguished between them, and call them all Yourouks. The first of these are called *Takhtagee*, and principally occupy themselves in wood cutting and charcoal burning. This name is derived from the word *takht*, a plank, and refers to their occupation; they prefer, however, to be called *Allevi*, the origin of which name I do not know. These people are generally to be found in such

parts of the district as are covered with forests, which they are year by year destroying, whereas the other branch of Yourouks are strictly pastoral, and are found in their tents in open spaces, or amongst the low brushwood which is suitable as fodder for their cattle.

First of all we will speak of the Takhtagee Yourouks. (Yourouk is derived from the Turkish word *youroumek*, to wander.) We came across them chiefly in Lycia and the confines of Pamphylia. Many of them adopt a semi-sedentary life, and dwell in huts built of rough stone, with walls three or four feet high, and a round thatched roof without central support, reminding one forcibly of the round Turkoman tents, from which pattern this form of architecture is doubtless derived.

The religious ideas of the Takhtagee are decidedly peculiar and suggestive of not only the Ansairee of the Lebanon, but also of the Yezedee from the district near Mosul. Their belief in the transmigration of souls is very marked: to them the peacock is the embodiment of evil, yet it is an animal which may rise to a higher position in a future existence. This at once connects them with the Yezedee, or so-called devil worshippers, who, as Dr. Badger relates in his history of the Nestorians, worship a brass representation of a peacock, *Melek Taoos*, or King Peacock, as they call it in their secret assemblies, which they consider to be the god of evil, and therefore the one to be most propitiated. Like the Yezedee, the Takhtagee never use the word *Sheitan*, and shudder if anyone else makes use of that very common Turkish oath. Ali to them is the great prophet, the latest and most perfect incarnation of the diety, which connects them at once with the Ansairee of the Lebanon, and the Ali-ullah-hi of Northern Persia, to both of whom Ali is God. There are many stories in connection with the secret assemblies of the Takhtagee, but most of them, I should imagine, like those told about the Ansairee, are chiefly the calumnies of their enemies. Curiously enough, the Takhtagee wash like the Shütes of Persia, from the wrist upwards, not like the Sonnee who wash in the reverse direction.

Perhaps in this secret form of religion we may be confronted with the survival of some heathen cult, perhaps it may be a half-formed or decayed form of Christianity. About the Ansairee, I have stronger opinions than about the Takhtagee. I feel at present wholly unable to form any definite opinion.

The physique of this race is peculiar; they have long, pointed heads, and it is a common custom amongst them tightly to bind the heads of their infants; whether this peculiarity is due to this custom or not, I am not prepared to offer an opinion.

The best time to study the Pastoral Yourouk is during the

winter, when they come down to the plains near the coast with their flocks and herds. This is their *Kishla*, or winter quarters (derived from *Kish*, winter), as opposed to the *Yaela*, or summer quarters (derived from *Yas*, spring).

Most of the inhabitants of the low-lying towns and villages go up to the mountains for their *yaela* in summer; so that during this period you can never be quite sure that you have got a genuine Yourouk or not for your study. The Yourouks are a finer race than the Takhtagee, lithe of limb and seldom under six feet in height.

Some of them have adopted a semi-sedentary life for three months of the year, dwelling in hovels erected out of ancient ruins, in the tombs of the ancient Greeks, but as soon as spring comes their abodes become uninhabitable from vermin, and they betake themselves again to their tents. They are an exceedingly peaceful and law-abiding race, a great contrast to their neighbours the Afshars, Kourds, and Circassians, whose habitat is more to the east, and the Turks look upon them as the policemen of the mountains, and they are always ready to give information concerning the thefts and smuggling of the less peaceful tribes, several instances of which came under our notice.

The natural abode of the Yourouk is his black goat's-hair tent, with the camel pack-saddles built round for a wall and the family mattresses spread in the midst; his life is occupied in looking after his flocks, and according to the season he moves from one pasture to another.

Their year they divide into three seasons—namely, *Yas*, spring, five months; *Güs*, summer, four months; and winter three months, which they again subdivide into three parts. (1) *Kampsin*, fifty days; (2) *Karadès*, black winter, ten days; and (3) one month, March, *Zembrai*, or the opening.

They are a fine, active race, insensible to fatigue and hardship, tall and strong, with open countenances, usually dark hair, but lighter complexions than most other tribes in Asia Minor. They dress in loose cotton clothes, and their women do not veil their faces. Their infants they swaddle, first binding round the child's body a rag containing earth heated with a stone; but infant mortality is enormous amongst them. Nearly every woman has had a large family, of which only two or three survive. Hence the survival of the fittest, and the healthy lives they lead contribute to the fineness of the race: they also tightly bind the infant's head, for what purpose I do not know. We found a considerable percentage of idiots amongst them, whom they treat with superstitious care; and many instances of abortion in the shape of infants without arms, a wrong number of fingers, &c. One man, from the village of Tapan,

north of Sis, had a horn like a goat's horn growing on his head. He is, I hear, coming to Europe to exhibit himself.

Diseases are uncommon amongst them, except *teletmeh*, or throat disease (to cure which they wrap the patient in the warm skins of newly-slaughtered animals), and spleen, which they treat with poultices and decoctions of mountain herbs.

Their intercourse with the outer world is very limited ; often a well-to-do citizen of some town furnishes a body of Yourouks with flocks by contract ; the Yourouk to provide so many okes of milk, cheese, butter, &c., whilst the tribes get what milk is over, the hair, &c., and the contractor agrees also to keep up the flock, if by chance it diminishes. This is termed "an immortal contract." In this way the Yourouks often amass flocks of their own, and in time pay off the lender. Their communication is generally done by tallies.

These nomads are very destructive to the country they travel over ; lighting their fires beneath trees, they ruthlessly destroy acres of timber, and the valleys of this part of the Taurus are rich in tall, straight fir-trees used for masts ; then they lay bare whole tracts of country, that they may have fodder for their flocks, and nothing is so destructive to timber as the habit they have of tapping the fir-trees near the root for the turpentine. A deep notch is cut, and the turpentine all flows to this part. After a while the tree is cut down, and the wood in the vicinity of the notch is used for torches, the only light they make use of. Again, they bark the cedars to make their beehives, and for roofing purposes, and are the most destructive enemy the forests of Asia Minor have. Luckily, the vast extent of forest and the sparsity of inhabitants makes the destruction of timber less marked ; but it is a steady destruction if slow, and must in the end ruin the forests of the country.

In his mountain wanderings the Yourouk has regular visitors at stated times. The goat and sheep merchant comes in the spring, pitches his tent in a central place, sits with the big men of the tribe around him on cushions, smokes his narghili, and has a pot of coffee boiling in the embers, and buys from those who are willing to sell. When he has amassed as many as he can conveniently manage, he sets off to the nearest town to realize a large profit.

They are great camel-breeders, and produce the valuable sort of mule camel, common to Asia Minor and known as the Toulou camel, a cross between the Bactrian and the Syrian ; and in spring large Bactrian stallions are brought round amongst the encampments. This cross produces a camel excellent for mountaineering purposes, alike impervious to the snows of the mountains and the heat of the plains.

Then the tax collector comes to gather in the Ashr, or tax on their cattle; he also pitches his tent, and is surrounded by the leading men, but as often as not he has a lot of trouble, for when they are advised of his advent the Yourouks hide a portion of their flocks in out-of-the-way caves to avoid the tax. Then comes the travelling tinker to mend their copper pots—the great importer of external gossip amongst them; he settles for a few days at each place where he finds ten or more tents, with his bellows and his assistant, and mends with nitre the quaint-shaped coffee-pots and household copper utensils which they use, in return for which he gets butter and cheese, and with these he returns to the town as soon as he has got together as much as his mule can carry. Visits are also periodically expected from the wool merchants, skin dealers, and the public circumciser, who initiates the young Yourouks into the first mysteries of the Mohammedan faith.

In food the Yourouks are exceedingly frugal—their bread in times of plenty is made of flour, in times of famine of acorns; it is of the oatcake type, and baked with great dexterity by women on copper platters over a few embers—cakes with vegetable inside, milk, cheese, and very rarely meat, and no wine. Coffee, however, is essential to them, and often I have wondered what these nomads, so unchanged in everything else, did before coffee was made known, until one day when coffee ran short an excellent substitute was provided for us, made of the seeds of a fine species of thistle, botanically termed *Gundelia Tournefortia*, for it was discovered by Gundelscheimer and Tournefort, who calls it the “finest plant in the whole Levant,” though he apparently was not aware of its use. It grows in dry stony places all over the southern slopes of the Taurus, and is, I understand, very plentiful in Afghanistan. The coffee produced by it is a little lighter in colour, but more aromatic and bitter than ours; they use it also as a stomachic.

By boiling the cones of the *Juniperus drupacea* in a large cauldron for a long time, a thick sweet stuff is produced; this they mix with flour, and the result is not unlike chocolate cream, and they call it *pelteh*.

In producing material from the mountain herbs the Yourouks are very cunning. Before aniline dyes were invented they drove a good trade in colours, but now it does not pay them to continue making them, and European dyes are used by their women in making the Karamanian carpets. The milk of a spurge, called *Galaxhidi* by the Greeks, is boiled with onion leaves. When the wool is put in, the colour does not at first appear until it is plunged into cold water, when a brilliant red is the result. From the gall of the *Quercus infectoria* they make another dye—in

fact, their mountains are covered with herbs useful for all kinds of purposes.

The Yourouk will do anything for tobacco. When it is not forthcoming they make use of certain leaves known to them, and even are known at times to use smoke-dried fig-leaves.

The Yourouks are an exceedingly polygamous race. Poor though he is, a man will often have seven wives, or more properly speaking, seven slaves. Each wife generally occupies a different tent; one minds one portion of the flock in one part, another in another direction, another wife looks after the camels, another stays at home to weave carpets, another collects wood and fetches water; and he must be a very poor man indeed who cannot boast of at least three wives. The natural result of this is that the female population, though in excess of the male, is not enough to meet the demand, so that much is done in the way of woman stealing, and if report speaks truly, a Yourouk who wants a wife is not particular in appropriating a married woman from another tribe.

On marriage the husband generally pays something to the father, and this has given rise to the idea that the nomads are in the habit of selling their wives for the harems of Constantinople, whereas they are only carrying out their legitimate idea of the marriage contract. The Yourouks are, strictly speaking, endogamists as far as they can manage it, only going outside when necessity obliges them. In this they are a marked contrast to their neighbours the Circassians, who generally seek a wife from a remote settlement. The Circassians also pay something down for a wife: the *kalim* or price is fixed in *baitals* or mares, their ordinary scale of measurement, 1 camel=5 mares, 20 sheep=1 mare, &c. At a betrothal the Yourouks kill a lamb, play the tambourine, let off guns, &c., and exchange handkerchiefs; nothing else. The marriage is a little gayer, dancing and feasting for three or four days, but the ceremony so often repeated seems to lose its zest.

The Turkish Government is anxious to get the Yourouks to settle in some of the more favourable localities on the southern slopes of the Taurus, where a few of the wretched hovels have been erected, but the Yourouks resent the idea, and doggedly refuse to have a mosque or a Hodja. We saw several attempts to thus bind them, but they resent the idea and the mosque falls into ruins. Their religion is a truly pastoral one, and impregnated with much secrecy though amongst them we never saw traces, as with the Takhtagees, of the Ali worship. They are, however, quite distinct from the Mohammedans, for they weep over a corpse, deck it with flowers, and give wine at bridal festivities. Sacred trees by the side of the pathways are hung with rags (to

cure fevers) wooden spoons, &c. ; and there is a little pile of stones hard by which passers-by add to, and when a Yourouk dies they bring his body to one of these open-air temples, read a little over it from the Koran, and take a few of the small stones to put over his lonely grave. They prefer to bury near a path so that the passer-by may say a prayer, and this has given rise to the erroneous belief that their cemeteries are those of villages which have disappeared. This tree worship amongst them is highly interesting ; like the sacred groves of Hellenic and biblical folklore, each sacred tree has its spirit and is never cut down for fear of driving away the genius loci, and the transference of evil to trees has its parallel in the East Indian Islands, where epilepsy is transferred to trees by striking the patient with the branches.

Their superstitions are few ; they have their Piri, who inhabit streams, and houses and cliffs like all savage races, but they believe in nothing that harms them, and have no special dread of ruins. In the mountains where rain-water has settled they say that if a wild animal—an ibex or a bear—has drunk there, if a man from civilisation drinks after it he will become wild like they are, and this is how they became Yourouks. Where the Yourouk is sedentary and produces crops his tools are of the most primitive nature, the threshing machine of pine wood, set with flint stones at the bottom fixed along the grain of the wood, cf. Isaiah xli, 15 : “ The new sharp threshing instrument having teeth.” On this the man sits and is dragged by bullocks round and round. Their spade is the old Roman bipalium, and their sheep are the fat-tailed ones such as Herodotus described as being “ one cubit in width ” (Herod. iii, § 113), and such as one sees on the bas-reliefs of Persepolis. Their churns are skins hung on three sticks, and stirred with a dasher. Wooden utensils are the most generally in use, a wooden mortar for pounding coffee, wooden dishes, bowls, &c. ; but then each tent has its heirlooms of copper utensils, which are mended with great care and handed down for generations.

The Yourouks are believers in magic and have prophets among them, who look in water, open books, and from the grain of wood can tell who has stolen a goat and where it is. The evil eye, too, they strongly believe in, and the efficacy of an onion hung up in the tent to keep it off. Their games are mostly rough, and consist of wrestling and feats of strength.

Yourouk women often mark their heads with the sign of the cross, having seen Christian women doing so, and believe it brings good luck.

So that each family may know its own cattle they cut the ears of goats, camels, and cows with different marks, and some of them have a very grotesque effect.

It is difficult to obtain from their tradition any idea of the origin of the Yourouk. They will always tell you that they are the descendants of those who inhabited the ruins amongst which they now dwell, and that their kind ancestors put up letters on the walls to inform them concerning treasure they had concealed. I have seen a Yourouk hard at work with a chisel making his way into a column in which he is sure gold is hidden. I have seen them dig holes below Greek inscriptions with the same object in view.

Each tribe has its Agha, or chief, who is held responsible by the government for the good conduct of the tribe. Practically he is their legislator, and settles all disputes, for a Yourouk never thinks of taking his grievances before the Turkish law courts.

The advent of the Yourouks into Asia Minor and their origin is lost in obscurity. Bertrandon de la Broquière tells us how two waves of them spread over Asia Minor in the fifteenth century, the first settling in the towns and blending with the Turks, the second preferring to keep up the nomad habits of their forefathers. The great number of Persian words in the dialect of Turkish that they speak—words never used by other Turks, such as *beruh*, “be off,” *shuma* for “you,” “pool” for money, &c.—stamps them as originally having used that language and coming from the Persian Mountains. In features and colour they are more akin to the Kourds than the Persians or the Armenians. Their skin is fairer, and their cast of countenance would argue that they are of northern origin, perhaps from the mountainous district east of the Caspian.

DISCUSSION.

Mr. WALHOUSE made some remarks regarding the aversion from the peacock, spoken of by Mr. Bent, as held by the tribes described by him. Mr. Walhouse asked whether the peacock is found in a wild state in the countries north of the Black Sea, as he had supposed the *habitat* of the peacock did not extend west of India. Mr. Bent, in stating that it is found in Persia, also mentioned that the turkey is included in the same condemnation of ill-omen and uncleanness. This is remarkable, as the turkey is an American bird, and can have been known only recently in those countries.

Prof. RUPERT JONES referred to the fact that a threshing-machine, set with flints, such as that described by Mr. Bent, had been brought from Aleppo, and forms part of the Christy Collection in the British Museum, Bloomsbury.

The following paper was then read by the Author :—

On the WILTSHIRE CIRCLES.

By A. L. LEWIS, F.C.A.

(WITH PLATE XI.)

THE series of papers on Rude Stone Monuments which I have from time to time during the last twenty years been permitted to bring before this Institute, and the Societies which have merged in it, would seem to be incomplete without some notice of those largest and best known of all our circles, the remains of which are to be found in Wiltshire. These, however, have been so frequently planned, drawn, and described, that I shall assume that their details are known to all who care enough about the subject to read this paper, and I shall therefore restrict myself to the discussion of certain points which are in dispute, and if, in doing so, I refer very largely to two Reports presented in the years 1882 and 1883 to the Society of Antiquaries by the Rev. W. C. Lukis, it is because those reports not only embody Mr. Lukis' own views, which are always worthy of the highest consideration, but because they appear to have been semi-officially, at least, endorsed by the Society of Antiquaries, and may therefore be taken generally as the best exponents of certain opinions to which I am opposed.

ABURY.

The circles at Abury (or Avebury) take precedence of all others, both on account of their own magnitude and of that of the stones composing them. They were first noticed by Aubrey in 1648-9, at which time they were almost entire, but he, unfortunately, did not make a very accurate plan of them. Dr. Stukeley spent much time in investigating them between seventy and eighty years later, but they had, during that interval, been nearly destroyed; from the information, however, which he obtained, Dr. Stukeley decided that they had consisted of two sets of concentric circles and some other stones, surrounded by another circle (from 1,100 to 1,200 feet in diameter), which again was encircled by a broad and deep ditch, outside which was an embankment large enough for a railway; and that there were also two avenues of stones, each a mile or so long, one leading in a south-easterly direction to a smaller double circle on Overton Hill, and the other leading in a south-westerly direction to a single stone. In this arrangement

Stukeley saw a monstrous figure of a snake, the head of which was the Overton Hill circle, while the convolutions of the body formed the Abury circles, and the stone at the end of the south-western avenue represented the tip of the tail.

Mr. Lukis, in his first report to the Society of Antiquaries ("Proc." IX, 150), takes great exception not only to Stukeley's theories but also to his statements as to facts. Thus he says of the two smaller circles: "Each, according to Stukeley, contained a concentric circle; in the centre of the northern circle there was a 'cove,' whatever that may mean, and in the centre of the southern circle a pillar; not a trace of these concentric circles is now perceptible upon the surface; of their former existence, therefore, there may be some doubt, for neither is Aubrey nor Sir R. C. Hoare responsible for them, nor for the central pillar. The Rector of Yatesbury and I procured a number of men, who carefully probed the ground with iron bars wherever Stukeley had marked fallen stones in his plan, and wherever sarsen chippings might be presumed to remain from broken stones, and with the exception of one buried stone of the supposed northern inner circle, we met with no indication of them." Of the northern inner circle, Sir R. C. Hoare's surveyor, Mr. Crocker, marked one stone as remaining in 1812, and Dean Merewether testifies to the existence of two prostrate stones in 1849, so that we have plenty of independent evidence for one if not two stones of this circle, and if the stone which Mr. Lukis found buried be not one of these stones but another, we have his own evidence for a third stone; nor does Stukeley say of the others in the northern circle that they were buried, but that they were taken up and used for building purposes. Of the southern circle, he says, some are buried under a barn and under houses, and that one is buried under the earth in a little garden, so that Mr. Lukis' failure in finding them is no evidence whatever of inaccuracy on the part of Stukeley, who, moreover, gives the dates of removal and the names of the barbarians who removed most of the stones in question. Aubrey, whose plan Mr. Lukis prefers to Stukeley's, though he does not mark any inner circle in the northern circle, does show stones scattered about inside the southern circle, which may very well have been remains of the southern inner circle, for Mr. Lukis points out with regard to the two stones at Longstone Cove, which still exist and afford an opportunity of comparison, "how unfaithful" (Aubrey's) "drawings are as to the form and position of the stones," while Sir R. C. Hoare expressly states that Aubrey, "in his rough plan, noticed the stones only that were erect, not those reclining or fallen," which is, indeed, clearly shown by a comparison of Aubrey's plan with Stukeley's, and, although Stukeley says the

people told him that the inner northern circle was nearly all standing in 1710, he does not pretend to have seen it in that condition himself, but shows the then existing stones as "fallen," except that one which was still standing in Sir R. C. Hoare's time, and apparently remained in a prostrate condition as lately as 1849. There can fortunately be no doubt about the existence in the centre of the northern circles of the three stones which Stukeley termed the "Adytum, or Cove of the Temple," for Aubrey made a special sketch of them, and two out of the three (B and C) still remain. They were arranged thus:—A | B | C, B facing to the north-east, and certainly seem to me very suitable for the inner sanctuary of such a temple as a circle or two circles of stones would form. A similar "cove" appears to have existed in the centre of the great circle at Arberlowe, in Derbyshire, which, like the Abury circles, is surrounded by a ditch and bank of considerable size. Another "cove" is to be found adjoining the large circles at Stanton Drew, of which, however, Mr. Lukis says: "The so-called 'cove' is probably a ruined cist of which the covering stone has long since disappeared;" but the height of one of the stones of this "cove" (ten feet), its thinness in proportion to its height, and the circumstances generally, make this conjecture of Mr. Lukis, in my opinion, highly improbable. The "Five Knights," near the Rollrich Circle, may also have been a similar "cove," as may "Kit's Coty House," and the "Hoar-stone" at Enstone, regarding both which the "ruined cist" idea has, I believe, been put forward, but without any evidence to support it. Where a "cove" is formed by three stones there may be some reference to that peculiar trinitarian idea which is found in so much ancient symbolism, and it may also be borne in mind that in the Aberdeenshire circles the so-called "altar-stone" is flanked by two other stones, forming a trinity, though not arranged like the "coves." On the whole, therefore, it appears to me highly probable that these "coves" were places of sacrifice, from which, however, the actual altars have been removed.

Mr. Lukis considers the south-western or Beckhampton Avenue to be the creation of Stukeley's own fertile imagination. "What," he says, "is the evidence for Stukeley's tail of the snake, *i.e.*, his Beckhampton Avenue? Aubrey saw no such thing, nor has anyone else," and so on, at great length. Briefly stated, Mr. Lukis' objections are that, as Aubrey has not shown any such avenue, it did not exist, and that, as the small river and a quantity of marshy ground lie in its way, it could not have existed; and he thinks the stones concerning the destruction of which Dr. Stukeley obtained full particulars, were merely stray blocks naturally deposited; the two large stones which still

remain in a field near Beckhampton, and are known as the "Longstone Cove," and which Dr. Stukeley said formed a cove adjoining the avenue, Mr. Lukis thinks are the remains of a large circle entirely distinct from Abury. Of the south-eastern or Kennet Avenue, which Stukeley believed to have run in a curved line from the great circle at Abury to the smaller circles on Overton Hill, Mr. Lukis says:—"I also told you last year that I had little faith in Stukeley's notion that the monument on Overton Hill with its avenue of stones formed a part of the Kennet Avenue, and consequently a part of the Avebury monument. It was the snake theory that gave rise to this notion. I am as sceptical now as I was then, for if there be strong ground for rejecting a Beckhampton Avenue there is good reason for the non-existence of the head and neck of a snake. There was unquestionably a monument on Overton Hill, consisting of two concentric rings of stones and of a short avenue—the evidence in favour of this cannot be disputed, but I hold that it was a monument wholly distinct from that of Avebury." (*Proc. Soc. Antiq.*, June, 1883.)

I myself have never adopted Stukeley's snake theory, for, even assuming his plan to be correct, I could see no great resemblance to a serpent, nor could I ever see anything very suggestive of a serpent in the arrangement of our other circles. The two stones called the "Longstone Cove," or "Devils Coits," are also much too far apart to have formed such a cove as that in the centre of the northern circle at Abury, or in the other places which I have mentioned, and I readily accept Mr. Lukis' suggestion that they were part of a circle, both on account of the position of the stones themselves, and because, if it were so, this circle, with the great circle at Abury, and the smaller one on Overton Hill, would have formed a group of three circles comparable with the three circles at Stanton Drew, the three called the "Hurlers," in Cornwall, and the three in Cumberland, of which one only (the "Long Meg" circle) now remains, and we should thus bring this magnificent group of circles into closer connection with the similar though smaller remains in other parts of the country. Having no prepossession in favour of the snake theory, the question whether the Kennet Avenue consisted of two avenues meeting at a right angle, as figured by Aubrey, or one curved avenue, as figured by Stukeley, is one which I can consider with the utmost impartiality, but the direction of the roads leads me to think that Stukeley was right. The roads from Marlborough to Abury and Calne doubtless follow tracks of very great antiquity, and these tracks struck the avenue close by the Overton Hill circle, which was a good landmark; they then followed the avenue until its curve towards

Abury took those who wanted to go westward out of their way, and they then turned off at an angle, leaving those who wanted to go to Abury to follow the avenue which the present road to the village practically does, though its junction with the main road has been diverted by buildings, &c. That the avenue took the curve that the main road now takes between the site of the Overton Hill circle and the beginning of the road to Abury is shown by four prostrate stones under the hedge in the meadow on the south side of the curve. If Aubrey really found an angle in the avenue it must have been an obtuse and not a right angle, for a right angle could not be planned on the site; but as he has placed the river on the wrong side of Silbury Hill, it is evident that he was not so exact in this part of his plan as he was about the bank and vallum of the great circle, where he certainly came nearer the truth than Stukeley did.

Mr. Lukis' objections to the Beckhampton Avenue are that it must have led across the river and over impassable ground, and that Aubrey does not mention it. At Stanton Drew two of the circles have short avenues which go from them towards the river (much larger than the Kennet), which flows close by, and at Mount Murray, in the Isle of Man, there is also a small circle with a curved avenue leading to it across decidedly marshy ground, so that it is in no way improbable that an avenue formerly existed leading from the Abury circle to one bank of the Kennet, and that a similar avenue led from the Longstone Cove circle (if circle it were) to the other bank. If the circles were places of worship or sacrifice, such avenues connecting them with a running stream may have had a special object or meaning. The objection that Aubrey does not mention any remains of a second avenue is a more serious, but not a fatal one. A much more careful observer than Aubrey showed himself to be once denied the existence of a large stone which I was afterwards able to show him *in situ*, and quite as obvious as any of the Beckhampton avenue stones would have been. Stukeley's statements about the stones of the avenue leading from the great circle towards the river are very precise, and it appears from them that some remained *in situ* in his time, though prostrate, while the dates of the destruction of others were perfectly well-known; a great quantity of stone has also been used in this direction in making causeways, &c., which makes it probable that some ancient monumental construction formerly stood on the spot. Mr. Lukis would have us believe that these stones were merely stones lying casually about without any arrangement, but Stukeley says: "Reuben Horsal remembers three standing in the pasture," and again, "Mr. Alexander told me he remembered several

stones standing by the parting of the roads under Beckhampton, demolished by Richard Fowler"; and I need hardly point out that a number of stones could hardly have come into a standing position accidentally, whatever might be the case with prostrate stones. If, as I imagine, the stones Mr. Alexander told Stukeley of were south of the Longstone Cove (or circle), they were probably the remains of a second avenue belonging to it. As in the case of the Kennet avenue the present arrangement of the roads affords much reason for believing in the former existence of the Beckhampton avenue, for there is a straight and good, but desolate road, eight miles long, from Devizes to the Calne road at Beckhampton, and thence to Abury; and although the section from Beckhampton to Abury does not now follow the line of the avenue, there are indications that it formerly did so, and that the road from Devizes led up to the beginning of the avenue. While then we need not adopt Stukeley's snake theory, we are not, in my opinion, justified in rejecting all the information which he picked up during a series of years from those inhabitants who had known the stones and had assisted in their destruction.

WINTERBOURNE BASSETT.

There was formerly a circle, about four miles north from Abury, in the parish of Winterbourne Bassett. Stukeley described it as a "double circle, concentric, sixty cubits diameter, the two circles near one another, so that one may walk between . . . west of it is a single broad, flat, and high stone standing by itself." In Sir R. C. Hoare's time it consisted "only of a few inconsiderable stones." Mr. Lukis says of it: "Not one stone is now standing and only six are visible, and one or two of these are barely above ground. By probing we found eleven buried stones, which we uncovered. Some of them appear to be very near to their original places in the circles, and others have been displaced. Stukeley's 60 cubits diameter (110 feet according to his measure of a cubit) is clearly an error for radius, for the diameter of the outer circle is about 240 feet and that of the inner 165 feet. The stones are small, and the monument can only have been imposing by reason of its large size. A prostrate stone occupies the centre of the circles, and in this respect we are reminded of two Cornish circles, which have a like feature. It is possible, but scarcely probable, that this stone belonged to the inner circle left here in course of removal, and yet, if it was in the centre when Stukeley visited the monument, it is strange that he should have been silent respecting it, with his keen eye for

keblas and coves. The menhir west of the circle and the barrow northward have disappeared, but in the same field with the circles, and at a distance of 253 feet from the centre of them, in a direction S.S.E., is a large stone lying upon the ground, nine feet long, seven feet wide, and at a distance of 351 E.N.E. feet from the centre, are two fallen stones much buried. These three stones are not alluded to by Stukeley and Hoare." I have visited the site of this circle, but have nothing to add to Mr. Lukis' description, and am glad to have his authority for an outlying stone to the east north-east of it, the significance of which will be referred to further on.

STONEHENGE.

I now propose to consider a few points connected with Stonehenge, and, to save needless repetition, I shall assume that its general arrangement is fully known to my readers.

Respecting the so-called "altar-stone," I would suggest, firstly, that though probably not an altar itself, it may have served as a base for an altar; and, secondly, that the little blue-stone impost, the use of which no one has yet found out, may possibly have stood on two small stones on this base, and formed or represented an altar. Aubrey was told by the Earl of Pembroke that an altar-stone was found in the middle of the area and carried away, but Mr. Petrie points out that there is "no such stone in Inigo Jones' plan, nor is there any hole or sharp sinking of the earth in the middle of the area such as would be left by abstracting a large stone sunken in the ground."

Another great question is as to the relative age of the respective circles at Stonehenge. My own idea of the natural sequence of things is that, if there were any difference in their age, the bluestone circles were the first on the ground, with the "Friar's Heel" as an outlying stone to the north-east, and that the sarsen stones, so unique in their manner of arrangement and fixing, were later, and were perhaps added in post-Roman times, and possibly, as stated by old chroniclers, to commemorate the massacre of the Britons by the Saxons. Mr. Petrie considers that the position of the centres of the various circles tends to show the sarsen circles to be the oldest, but the outer bluestones, if there first, must have been moved to enable the inner trilithons to be erected, and must have been put back as best they could be, so that an irregularity in their centring is not surprising. If such additions to and re-arrangements of an older monument were made in post-Roman times, it is also possible that the "Friar's Heel" might have been moved

at the same time to the point where the midsummer sun rose then, so that too much reliance must not be placed upon any evidence as to the original date of the monument founded upon the present position of the "Friar's Heel" with regard to the rising midsummer sun.

Mr. Lukis considers the "Friar's Heel" to be merely "a sepulchral monolith erected upon consecrated ground, perhaps long after the purpose for which the circles were designed had been discontinued," his only assigned reason being that the "Friar's Heel" is not shaped with a tool, and that all the stones of the circle are so shaped; and with regard to the prostrate stone which lies between the "Friar's Heel" and the circles, he says, "the late Mr. Cunnington, who was Sir R. C. Hoare's archæological coadjutor, proved, as he wrote in 1803, that this stone stood erect on the spot, by finding the excavation which it originally occupied, and accordingly his son, Mr. W. Cunnington, F.G.S., has remarked that, if this be the case, it must have entirely concealed the 'Friar's Heel' from persons standing in front of the western trilithon, or exact centre of the building, and that it would have been impossible to see the sun rise over the supposed 'gnomon' at the summer solstice; this fact, which can scarcely be disputed, serves to dispose of the 'grand orrery' theory." Now, as I have never on the one hand supported Dr. Stukeley's serpent theory regarding Abury, so, on the other hand, I have never believed in what may properly be called the "grand orrery" theory respecting Stonehenge, but have always thought that no one would be more astonished at the various astronomical coincidences found in it than the people themselves who arranged the placing of the stones. I do, however, most strongly maintain what may be called the "rising sun" theory. Mr. Petrie does not think that the stone now prostrate at the edge of the ditch did stand upright, but if it did, it would simply take the function now assigned to the "Friar's Heel," and the north-easterly reference would remain as before. Mr. Lukis also thinks that the "Friar's Heel" is much more recent than the other stones, because it is not worked, but most people would regard this as an evidence of greater age; it may indeed have been left unworked on account of greater veneration due to its position and function. If, however, these two stones had never existed the whole monument would still appear to be especially designed with reference to the north-east; but that one or both of these stones formed part of the original design is rendered almost certain by the fact that the Roll-rich, a rough circle of the same diameter as the outer circle at Stonehenge, has its outlying stone (the "King-stone") at very nearly the same distance and direction as

Stonehenge has in the "Friar's Heel," while, in other circles, there is a similar reference to the north-east, either by outlying stones or adjoining circles, or prominent hill-tops. To give full particulars upon these points would be to repeat the substance of a number of papers already published in our Journal, but in a paper on circles in Cumberland, printed in the Journal in May, 1886, I stated that out of twenty-one circles visited in South Britain eighteen had a special reference to the north-east, the next most distinguished quarter being the south-east (in nine cases only). I may now say nineteen circles out of the twenty-one have the north-easterly reference as Warne in his "Ancient Dorset" (p. 117) says of the "Nine Stones" at Winterbourne Abbas: "A tenth stone which the eye detects just peeping through the long grass on the north-east side." I did not see this stone, as the circle is enclosed in a plantation, which I was not permitted to enter, so I tabulated that circle as having no reference towards any direction, but I can now, on Warne's authority, put it on the same footing as the others. The circle at Winterbourne Bassett may also be added to the list on the authority of Mr. Lukis.

What these arrangements can point to except sun worship in some form or other no one has yet been able to suggest, but I must observe that the variation in the direction in which the outlying stones, &c., stand in regard to the circles is very considerable, so that the arrangement was probably rather conventional in many cases.

Mr. Lukis, however, raises—not for the first time—another objection to the use of circles as temples. Speaking of the Stanton Drew circles, he says: "Circles situated as these are in close proximity are difficult of explanation, and the difficulty is the greater when their dimensions are so unequal." "It is possible that some may have been places for religious gatherings of the people, but as we are at present wholly ignorant of the people who erected them, and of their religious beliefs, we are not likely to make much progress in this direction for some time to come." "Clusters of circles without avenues are found elsewhere, *e.g.*, those at the foot of Sittaford Tor on Dartmoor, and at Tregaseal and the Hurlers in Cornwall; of the use of these groups it is not easy to form an opinion. If they were temples why should the worshippers have been gathered into separate congregations? It seems to me that this grouping must be fatal to the temple theory." Against this objection we have not only the analogy of different temples in close proximity for different seasons, or gods, or purposes in pagan religions, and the existence of numerous chapels grouped together under one roof in Christian cathedrals and churches, but the fact stated

by Colonel Forbes Leslie ("Early Races of Scotland," p. 214), that "several stone circles close together, even intersecting each other, and lately erected to the same object of worship, viz., to Vital, may any day be seen in secluded rocky places near towns and villages of the Dekhan in India. Near Poonah they are extremely common." I venture to submit that this is a case in which the old saying, "an ounce of practice is worth a ton of theory," holds good if it can possibly hold good anywhere.

In conclusion, I will simply say that while burials were undoubtedly made in some circles they did not take place in all. None have as yet been found, I believe, within the great circle at Abury, though plenty have been found round about it. This shows that interment was at the most a secondary object; the primary object I believe to have been that of worship or sacrifice.

Explanation of Plate XI.

Fig. 1. Sketch Plan of Stonehenge.

- A. Trench round circles (diameter 300 feet).
- B. Circles (represented here as completely restored, though it is doubtful whether they were ever actually completed).
- C. "Friar's Heel."
- D. Flat stone on edge of trench.
- E. Stone called the "Altar Stone."

Fig. 2. Plan of Abury, according to Aubrey (about 1663).

Fig. 3. Plan of Abury, according to Stukeley (about 1722).

Fig. 4. Plan of Abury, restoration suggested by the author.

- A. Great Circle with inner circles, bank, and trench.
- B. Church.
- C. Silbury Hill.
- D. Kennet Avenue (several stones still remaining).
- E. Road to Marlborough.
- F. Overton Hill Circle and Avenue (entirely destroyed).
- G. Road to Calne.
- H. River Kennet.
- K. "Longstone Cove" (two stones remaining).
- L. Beckhampton Avenue (entirely destroyed).
- M. Road to Devizes.
- NN. Roads to Abury.
- PPP. Roman Road (as shown in Sir R. C. Hoare's plan.)

The top edge of numbers 1, 3, and 4 is true north, but the top edge of number 2 is about magnetic north.

Numbers 3 and 4 each represent about two square miles of country, and the stones are consequently much magnified in size and diminished in number. The smallness of the scale has also compelled the omission of the cove and inner circle within the northern circle, and the single stone and inner circle within the southern circle, inside the large circle at Abury; but in these points the author's restoration would follow Stukeley, the only difference being with regard to the Beckhampton Avenue and Longstone Cove.

The diameter of the outer circle of stones at Stonehenge is 100 feet, of that at Abury, 1,100 to 1,200 feet.

DISCUSSION.

Prof. T. RUPERT JONES expressed his pleasure at Mr. Lewis's paper showing a strong reaction in favour of Stukeley's veracity as to the actual position and state of the stones of Avebury, as described by that much-discredited old author from his own observation and carefully collected information. The speaker further remarked that he long ago formed an opinion that Stonehenge, as a temple dedicated to the sun, passed through gradations of change and partial reconstruction, such as are now known as "church-restoration," to meet modifications of the cult and successive fashions of architectural arrangement, as far as the means at hand allowed.

Mr. R. B. HOLT called attention to *Hermes Britannicus*, by the late Rev. W. L. Bowles, Canon Residentiary of Sarum. That author thought that Stonehenge and Abury were the national temples of two distinct races, the first being dedicated to the Sun, the second to the Moon. He would be glad to know if the author of the paper agreed with Canon Bowles.

Mr. T. V. HOLMES remarked that there was one important peculiarity in the position of Avebury. The two most important of the Cumberland stone circles, that at Keswick and Long Meg and her Daughters in the Eden Valley district, stood like Stonehenge, not on the highest ground in their neighbourhood, yet on open upland plateaux. Avebury, on the other hand, lies low in the valley of the River Kennet, surrounded by higher ground on all sides, while the huge mound of Silbury occupies a similar position less than a mile lower down the valley. This seems clearly to point to a difference of purpose on the part of the constructors of Avebury. If Stonehenge and the Cumberland circles mentioned were connected (for example) with sun-worship, then Avebury probably became a sacred place in connection with river-worship, either on account of the occasional outflow of a bourne close by, or for some other reason.

The CHAIRMAN and Miss BUCKLAND also joined in the discussion.

Mr. LEWIS, in reply to Mr. Holt and Mr. Holmes, said that, inasmuch as the Abury circles were surrounded by a high embankment, a stone outside them would have been useless in connection with the sunrise, but the opening of the "cove" in the centre of the northern inner circle faced towards the north-east, so that the central stone of the three which formed this "cove," or as it might be called "holy of holies," and which happily still existed, faced the rising midsummer sun and received its earliest rays. At the Arberlowe circle, where a bank like that at Abury exists, the remains of a "cove" also exist in the centre of the circle. The northern circle of Abury therefore, appeared to have been devoted to sun-worship, but other parts of it might also have been devoted to river-worship (the Beckhampton avenue, for instance) and to moon-worship, just as in large cathedrals many altars were found dedicated to as many different saints; but as he did not know what characteristic to look for as suggesting moon-worship, he could not identify it. The southern inner circle might, however, very probably have been devoted to the moon. He was much gratified by the general concurrence in his views expressed by Professor Rupert Jones and the other speakers. Mr. Petrie considered the point of observation at Stonehenge to have been behind and through the great trilithon, and not in the centre of the circle.

ANTHROPOLOGICAL MISCELLANEA.

COMPARATIVE PORTRAITS OF AN INDIVIDUAL AT DIFFERENT AGES.

As photography is probably destined to play a larger part in Anthropology than it has hitherto done, the following extract from a recent article in a photographic journal may be of interest:—

“Mr. F. Galton’s idea of the comparison of photographs of the same person taken at different periods, from infancy upwards, is slightly indicated by an article with illustrations in the new *Strand Magazine* entitled, ‘Portraits of Celebrities at different times of their lives.’ The examples given are, however, only interesting from the point of view of that unscientific person, the ‘general reader.’ For instance, the comparison of a photograph of Lord Tennyson at fifty-two with a painting of the poet at the age of twenty-two tells us very little, nor can much be said about three portraits of Professor Blackie, one at the age of five from a painting, another at forty-five from a lithograph, and a third at eighty from a photograph. The series of Mr. Spurgeon’s portraits is more complete, as the four examples given—at the age of twenty-one, thirty, thirty-six, and fifty-four—are all from photographs. Miss Terry’s and Mr. Irving’s portraits are also from photographs, and Mr. Irving’s are noticeable because one of his photographs, taken when he was thirty years old, is not the least like him, save as to the hair, which appears to have taken about this time the peculiar wave with which we are all familiar. The concentrated look in the eyes and brows of Sir John Lubbock is repeated in each of the portraits given, and the extraordinary transformation which baldness and a beard have effected in Mr. Algernon Swinburne, who once had luxuriant locks and only a chin tuft, will surprise many.

“Experiments in portraiture of this kind, even when conducted on a scientific basis, must be always more or less incomplete and disappointing. When a dozen portraits taken in as many minutes show a face in a different aspect in each, not much dependence can be placed on the trustworthiness of a series taken at intervals of a year or more. Perhaps more accurate knowledge of the changes wrought by time would be obtained by photographing the features separately. A series of photographs of the mouth, for instance, extending over half a century, would be extremely curious.”—*The Photographic News*, December 26th, 1890.

ETHNOGRAPHIC RESEARCHES IN INDIA.

The following letter, dated 12th November, 1890, has been addressed by Mr. H. H. Risley, of the Bengal Civil Service, to the Secretary to the Government of Bengal, Financial Department:—

“1. With reference to the Resolution of the Government of Bengal, dated the 1st May, 1885, sanctioning certain arrangements for the prosecution of ethnographic researches in the territories subject to the Lieutenant Governor of Bengal, I have the honour to submit for the consideration of His Honour the Lieutenant Governor the outlines of a scheme for continuing similar researches in the Lower Provinces, and for extending them to other parts of India.

“2. It will be remembered that in 1885, and the two following years, a series of questions, based for the most part upon the heads of inquiry drawn up in 1874 by a Committee of the Anthropological Institute of Great Britain and Ireland, and framed so as to adapt to Indian conditions the methods of research sanctioned by European men of science, were circulated with the authority of the Government, and that answers were collected by a voluntary agency working under my supervision in every district of Bengal. Of the data procured by this method of inquiry, portions have been published in the *Contemporary* and the *Asiatic Quarterly Reviews*, the *Journal of the Anthropological Institute*, and the *Zeitschrift für Ethnologie*, and in the form of Papers read before the British Association, the Anthropological Institute of Great Britain and Ireland, and the Anthropological Society of Berlin. A proof copy of two out of the four volumes in which the results have been compiled for the Government of Bengal, has also been laid before the Board of Biology and the Board of Oriental Studies in the University of Cambridge, both of which bodies take considerable interest in the study of Indian ethnography.

“3. Although the inquiry extended only to the Lower Provinces of Bengal, and the record of the results, however complete for ordinary administrative purposes, must be regarded as incomplete from the scientific point of view, still enough has been done to demonstrate the remarkable facilities which India offers for collecting ethnographic data on a large scale, and, what is even more important, for testing these data by repetition and comparison. The reason for this is clear. In India a highly organised administrative body, of the most modern type, carries on the work of Government in constant and close contact with people whose beliefs and observances present examples of all stages and varieties of primitive culture, and who, nevertheless, show no signs either of dying out themselves or of parting with their most characteristic usages and superstitions. This state of

things offers peculiarly favourable opportunities for the formation of a trustworthy record of primitive custom and tradition.

"4. It is unnecessary for me to lay stress upon the high value which the customary law, the social observances, the folk lore and traditions, the superstitions, ritual, and religion of the people of India possess for all students of the early history of institutions. The field is comparatively untried, but the results obtained in Bengal seem to show that it is one of remarkable richness and variety. The data already collected, imperfect as they are, throw considerable light upon the early history of marriage and the family, the various forms of the custom of exogamy, the comparative prevalence and distribution of male and female kinship, the phenomena of totemism, and the development of different stages of religious belief. It is believed that they will also tend to facilitate and cheapen the operations of the Indian census and to enhance its accuracy, that they embody valuable information concerning infant marriage and the prohibition of widow marriage, and that, by extending our knowledge of the customs and habits of the people, they will indirectly raise the general standard of administration in India.

"5. This being so, it seems to me desirable to continue in Bengal, and to initiate in other Provinces of the Indian Empire the methods of investigation which have yielded such valuable results. I believe that this may be done without incurring large expenditure, and without putting an undue strain on the regular administrative staff.

"6. The Bengal inquiries have shown that in all grades of the administration officers, both European and Native, are to be found, who take a genuine interest in the investigation of social phenomena, and who would be prepared to assist actively in collecting ethnographic data in addition to their regular official duties. All that is needed is that the work should be set on foot under the general countenance and authority of the Government, that it should be organized on a regular system, that the current expenses of postage and stationery should be met, that some clerical assistance should be given, and that the results should be published from time to time in a form somewhat resembling that already adopted in Bengal.

"7. The following are the main features of the scheme which seems to me best calculated to carry out the objects in view :—

"(a.) That unpaid Provincial Directors of Ethnographic inquiries should be appointed by the Government in each of the large Provinces of India. It is believed that several of the higher officials will be ready to undertake this work in addition to their ordinary duties.

"(b.) That each Provincial Director should be provided by the Government with a clerk to carry on correspondence, and should be given an allowance for postage, stationery, etc.

- “(c.) That a series of Ethnographic questions should be drawn up, printed, and circulated by the authority of Government. I think it probable that the set of questions framed by Mr. J. G. Frazer, of Trinity College, Cambridge, would answer this purpose if modified to suit Indian conditions; and amplified with reference to the questions used in Bengal. Mr. Frazer has been good enough to offer to assist in carrying out the necessary alterations.
- “(d.) That the Provincial Directors, working through the District Officers, and the heads of departments, and in such other ways as they may find suitable, should enlist a number of correspondents in each Province, should supply them with copies of the questions and such further instructions as may be necessary, and should arrange with them the subjects to be taken up for inquiry, much in the same way as was done in Bengal.
- “(e.) That the Provincial Director, or correspondents selected by him, should from time to time draw up monographs on the Ethnography of different castes, tribes, or social groups, or on different branches of custom and folk lore.
- “(f.) That these monographs should be printed by the Government in such form as may be found convenient, and distributed to learned Societies in Europe and elsewhere in the same manner as the publications of the United States Bureau of Ethnology are now circulated.

“8. I submit that this plan offers a reasonable prospect of collecting at comparatively small cost a mass of information of great scientific value, which would at the same time be of use to the Government of India in dealing with the large class of administrative and legislative questions which directly or indirectly affect the social and religious life of the people. I would ask, with reference to the Resolution already cited, and connected correspondence, that the Lieutenant Governor may be moved to take the subject into consideration, and to submit this letter with a favourable recommendation to the Government of India.”

ETHNOGRAPHIC ALBUM OF THE PACIFIC ISLANDS.

The following note by Mr. J. Edge Partington accompanied the presentation of an Ethnographical Album by himself and Mr. Charles Heape:—

In presenting to the Library of the Anthropological Institute a copy of “The Ethnographical Album of the Pacific Islands,” it has been thought desirable that I should give some account of how my colleague Mr. Chas. Heape and myself first thought of bringing out such a work. It owes its inception to the fact that we are both collectors on a more or less scientific basis. He has made (and is

still making) a collection in this country, while I have had the advantage of largely collecting from the natives themselves while on a trip through the South Pacific Islands in the years 1879-80. It is to be regretted, however, that before visiting the Islands I had not taken a special interest in this subject, as I should then have been able to collect to much better purpose, especially with regard to obtaining more accurate information on the spot.

After two years' work in the preparation of the "Album" I can see that unless a collector has such previous knowledge he is very apt to be led astray as to the localities of his various possessions. This of course fifty years ago was difficult enough, but it has become still more so since the introduction of the foreign labour trade. "Foreign goods" now find their way in large quantities both to Queensland and Fiji, and are again distributed.

Many travellers have not the advantage of being able to compare the weapons, &c., of different districts; it is therefore very often the case that they are unable to settle the localities of their various possessions until they reach home. Unfortunately many do not then take this trouble, and the things are variously labelled as coming from the places where they were obtained, and they thus pass from hand to hand and often into local museums.

Although there are many books of travel which give descriptions of the country, statistics, &c., yet there are few that deal with the natives, and still fewer with their belongings; and thus a collector has very little chance when he becomes possessed of a new "piece" of being able to ascertain whence it comes, unless he be lucky enough to be within reach of the British Museum, for in my experience that is the *only* public museum from which anything like accurate information, on this particular subject, can be obtained. I have got heartily sick of the generic terms under which museums not interested in the Ethnography of the Pacific Islands hide either their ignorance or their indifference.

I think I have said enough to show the necessity of some work on this subject which will enable collectors to obtain information. If we have in any way succeeded I am sure that both Mr. Heape and myself are well repaid, for from the first the preparing of this work has been a labour of love; the price which we have put upon it being arranged to just cover the actual money out of pocket.

We have now been working upon it for over two years, and as each sheet was put upon the stone as drawn, and the requisite number of impressions immediately struck off, any mistake made could not afterwards be rectified or further information obtained added: we have therefore embodied such corrections and additions on a sheet to be cut up and gummed on the various plates to which they refer.

It is our intention to still continue making drawings of any further specimens that may turn up and notes of fresh information, and to issue such at a later date; this, combined with the impossibility of binding such a work to suit all, has been our reason for issuing it in its present form.

We have to thank Mr. Cutlibert Peek for his hint as to handwriting not being always clear enough to be certain of correctly conveying the right spelling of out-of-the-way names of places; we have therefore followed his advice and have had an index of places printed.

In connection with the production of this work our thanks are especially due to Mr. A. W. Franks and Mr. C. H. Read for their aid and encouragement.

OBITUARY NOTICES.

SIR R. F. BURTON, K.C.M.G.

Our Vice-President, Sir Richard Francis Burton, K.C.M.G., was born 19th March, 1821, and died at his Consulate at Trieste on 20th October, 1890. He was the eldest of the three children of Colonel Joseph N. Burton. He entered Trinity College, Oxford, in 1840, but soon got tired of University life. An appointment was obtained for him from the East India Company to the 14th regiment Bombay Native Infantry, and he joined his regiment at Gujerat in 1842. His proficiency in Hindustani led to his being appointed regimental interpreter, and his residence with his regiment in Scinde gave rise to the publication, in 1851, of his first important work, "Scinde, or the Unhappy Valley." In 1846-47 he took a six months' trip to Goa and the Blue Mountains, an account of which he also published in 1851. In addition to the work upon official reports incidental to his regimental duties, he applied himself to linguistic studies, and mastered the Persian, Gujerati, and Marathi languages. He returned to England in 1849. On 3rd April, 1853, he undertook his hazardous but successful pilgrimage to El Medinah and Meccah, the account of which, in three volumes, he published in 1855. On his return, he was selected for an even more perilous undertaking, that of proceeding to the Somali country. In November, 1854, he set out from Zeila, disguised as an Arab merchant, and reached Harrar in safety on 4th January, 1855, remaining there till the 13th. He was the first Englishman who had ever entered that famous city. He returned to Aden with a view of arranging for an expedition to the Upper Nile *viâ* Harrar, and landed at Berbera on 7th April at the head of a party of 42 men.

The expedition never left Berbera. On the night of the 29th April it was attacked by a crowd of Somalis, Burton and his companion, Speke, were severely wounded, and the expedition returned to Aden. In the following year he published his "First Footsteps in East Africa," and also addressed a letter to the Secretary of the Royal Geographical Society, strongly urging the importance of Berbera and the Somali coast for British interests in the Red Sea. This letter procured for him from the Government of India the appropriate reward of a severe snubbing.

He next offered himself for service in the Crimean war, and joined Beatson's Horse at the Dardanelles. He volunteered to relieve Kars, but his offer was not accepted, and he returned to

England determined to devote himself for the future to exploration.

He then undertook, with the assistance of the Government and the Royal Geographical Society, his great African expedition. Having obtained two years' leave of absence from the East India Company, he reached Zanzibar in December, 1856, accompanied by Lieut. Speke. After infinite labour and suffering, the expedition resulted in the discovery, by Burton, of Lake Tanganyika, and by Speke of Lake Victoria Nyanza. It terminated in March, 1859, and is recorded in the 29th volume of the "*Journal of the Royal Geographical Society*," and in Burton's work on "*The Lake Region of Equatorial Africa*."

In 1861 he published an account of a visit to Utah under the title of "*The City of the Saints*," and in the same year occurred his marriage to the lady whose admirable devotion to him we have had many opportunities of witnessing, and his appointment as Consul at Fernando Po. In the same year he explored the Cameroons mountains.

So far, we are indebted for the facts of his life to the excellent memoir in the December number of the "*Proceedings of the Royal Geographical Society*," but from this point our own *Proceedings* take it up, for he joined the *Ethnological Society* in 1861, when Hunt was its Honorary Secretary, and almost every principal event of his life since then has been recorded by some communication to our transactions. Burton had then just obtained a commission from the English Government to visit Dahome, and induce the ruler of that savage country to modify some of his customs. Before his departure, Hunt induced him to address to the Society some notes on Du Chaillu's explorations and adventures in Equatorial Africa, in which he said that Du Chaillu had well and veraciously studied the then new and curious race of which he had treated, and that every page produced upon his mind the effect of the bangle upon the cast charger after a year or two in the cabshafts of civilization.

From the 10th to the 17th April, 1862, he visited the source of the Gaboon, and spent a day among the Fans, which he described in a paper before the *Ethnological Society*, and in an article in the "*Anthropological Review*."

On the establishment of the *Anthropological Society* on 6th January, 1863, he took the Chair at the inaugural meeting, and was elected a Vice-President.

From 18th May to 17th June, 1863, he visited Kana, a ruined town in Dahome, and further prosecuted his mission to that country between 8th December, 1863, and 26th February, 1864, a stay long enough to learn something of the Ffon language. He gave an account of his visits to the *Ethnological Society* on 22nd November, 1864. The gallant old race of Dahome, he said, "had been killed out; it was pleasing to remark the gradual but sure advance of El Islam, the perfect cure for the disorders which ruled the land." On his return, he wrote a letter to the Wesleyan Mis-

sionary Committee, acknowledging the kindness of Mr. Bernasco, their Missionary. In the same year he visited the cataracts of the Congo river. He also edited General Marcy's "Prairie Traveller."

On 23rd October, 1863, he sent to the Anthropological Society a present of two skulls from Annabom, in the West African seas.

In 1864 he contributed to the "Anthropological Review" notes on scalping and on Waitz's anthropology, and published the account in two volumes of his mission to Dahome.

On his return to England he became a frequent attendant at the meetings of the Anthropological Society. On 1st November he read a paper on certain matters connected with the Dahomans, which appears in Vol. i of its "Memoirs." It was in the discussion on this paper that he first referred to the Society as the "refuge for destitute truth."

In 1865 he was appointed Consul at Santos, Brazil, and before his departure, a farewell dinner was given to him by members of the society, Lord Stanley (now Earl of Derby) in the chair, supported by Mr. (now Lord) Arthur Russell, the late Lord Houghton, Lord Milton, and others. From Santos he sent to the Society a paper on a hermaphrodite from the Cape de Verde Islands ("Memoirs," Vol. ii), and on a kitchen midden at Santos (11th December, 1865).

At the annual meeting of the Society in 1867, Dr. Hunt, its first President, took the newly created office of Director, and Captain Burton, though absent, was elected President in his place. Dr. Hunt, however, returned to that office the following year.

In 1869, Burton published, in two volumes, his "Explorations of the Highlands of the Brazil," to which Mrs. Burton wrote a characteristic and touching preface.

After the union of the Ethnological and Anthropological Societies, he contributed to the Institute in November and December, 1871, having then become Consul at Damascus, an account of the collections made by him in the Holy Land. He then said, "the two Societies always should have been one." In March, 1872, he read a paper on the Hamath stones, now famous as the Hittite inscriptions, and the Council published his transcripts of them.

In the summer of 1872, he went to Iceland and forwarded thence for exhibition a collection of human remains and other articles, which were described by Mr. Carter Blake. He obtained promotion to the Consulate at Trieste, and thence sent a translation of the work of M. Gerber on the primordial inhabitants of Minas Geraes, the great central province of Brazil.

At the beginning of 1873, some of our members seceded and formed the London Anthropological Society. Among them was Captain Burton, who became one of its Vice-Presidents. In a letter to our then Director, he gave as his reason "the deadly shade of respectability, the trail of the slow-worm, is over them all." That Society existed for three years, at the end of which the breach was happily healed, and the Institute has remained a united body ever since. Meanwhile, Captain Burton's contributions to the science

were made to the new Society and appeared in its Journal, "*Anthropologia*." They comprised an account of the kitchen middens of São Paulo, Brazil, and notes on the Castellieri or prehistoric ruins of the Istrian peninsula.

In 1875 he again became a contributor to our Journal, to which he sent papers on the Long Wall of Salona, and the ruined cities of Pharia and Gelsa di Lesina, in the neighbourhood of Trieste. In 1877 he sent us a collection of 50 flint flakes from Egypt, and a further paper on the Castellieri of Istria; in 1878 a paper on stones and bones from Egypt and Midian. In 1882 he was again among us, and read a paper at a special meeting held at the house of General Pitt Rivers on stone implements from the Gold Coast of West Africa. His last communication to us was made through Dr. Tylor, on 27th March, 1888, describing the two Akka boys brought to Europe by Miani.

The enumeration of his contributions to science through our own and other institutes, and of his amazing labour as an explorer does not exhaust the record of the services to mankind of the versatile and accomplished friend and colleague whose loss we have to lament. His translation of the *Lusiads* of Camoens, and his thorough if too daring version of the "*Thousand and One Nights*" will give him a permanent place in literature. His friend Winwood Reade, wrote of him, "He is in the truest sense of the word a cosmopolitan. He is versed in the cardinal languages of Europe, skilled in all the accomplishments of a soldier and a sportsman, a good classical scholar, a profound orientalist, and has considerable knowledge of the natural sciences. With all this, he is a thorough man of the world."

This witness is true. He was too original and too independent to be a popular man in official circles, and their neglect of him is not surprising.

The tardy reward of a Knight Commandership of St. Michael and St. George was hardly worthy of his distinguished services to his country, but he had already written his name so high in the annals of its great explorers that no handle was needed to distinguish it. The memory his colleagues in this Institute have of their association with him is that of a man whose personal qualities were as loveable as his genius was admirable.

E. W. BRABROOK.

MR. GEORGE HARRIS, LL.D., F.S.A.

George Harris, Hon. LL.D. (Grenville), and F.S.A., was for several years a Vice-President of the Institute. He caused to be printed, for private circulation, under the genial editorship of his friend, Dr. B. W. Richardson, F.R.S., in the year 1888, an interesting autobiography, from which we are able to glean the principal events in his life. He was born 6th May, 1809, the son of a solicitor in good practice at Rugby, and received his early education at the famous school there. Being in delicate health, and suffering from the ill-usage then common in public schools, he left Rugby in 1823, and was strangely enough entered as a midshipman in the Navy. It is hardly necessary to say that it was soon found that he was not suited for the hardships of naval life, and after some unpleasant experience at a private school in Devon, he was articled to his father, and finally admitted into the firm as a partner. An ambition for literary success and a desire for London life possessed him, and in June, 1838, he gave up his prospects at Rugby and came to London. He shortly afterwards entered himself as a student at Trinity Hall, Cambridge. In 1839 he was appointed editor of the *Hull Times*, and became a member of the Middle Temple. An article in his paper which offended a powerful interest led to the close of his journalistic career, and he thereupon resolved earnestly to prepare for the bar. He was called in 1843, and devoted himself to law and literature for some years, bringing out his "Life of Lord Chancellor Hardwicke," a work which gained him considerable reputation, and procured him the honour of an interview with the Prince Consort, in 1847. Not finding the road to fortune in either of those pursuits, he thought of marriage. The chapter in his autobiography which tells how he turned this matter over in his mind is charmingly quaint and naive, but the result in his wooing and winning Miss Elizabeth Innes was, as far as he was concerned, to place him beyond anxiety about money matters for the rest of his life, and to assure him happiness which seems never to have been interrupted, and as far as his friends were concerned to enable him to introduce them to a most graceful and kindly hostess. In 1861 he published "Civilization considered as a Science." In 1862 he was appointed by Lord Chancellor Westbury to be Registrar of the Court of Bankruptcy in Manchester. It was while acting in this capacity that he became a Fellow of the Anthropological Society of London, and President of the Manchester Anthropological Society, of which he delivered the inaugural address on 1st November, 1866. He was elected on our Council in 1868, early in which year he retired from the public

service, and was awarded the liberal pension of £666 13s. 4d. per annum. He had bought and enlarged the ancient manor house of Iselipps, standing in beautiful grounds in the village of Northolt, Middlesex, and there he spent the rest of his days. It was a yearly gratification to him, as long as his health permitted it, to invite his anthropological and antiquarian friends to pass a summer day with him. In 1869 he read a paper before the Anthropological Society on the distinctions, mental and moral, occasioned by the difference of sex. In 1871 he was elected a Vice-President, and was among those selected to retain that position on the formation of this Institute. In 1872 and 1873 he read papers before us on "The Hereditary Transmission of Endowments and Qualities of Different Kinds"; "On the Comparative Longevity of Animals of Different Species and of Man, and the Probable Causes which mainly conduce to promote this Difference"; "On Moral Irresponsibility resulting from Insanity"; "On the Concurrent Contemporaneous Progress of Renovation and Waste in Animated Frames, and the extent to which such Operations are Controllable by Artificial Means"; and "On Theories Regarding Intellect and Instinct, with an Attempt to deduce a Satisfactory Conclusion therefrom." He joined the London Anthropological Society in November, 1873, and read a paper to them on "Tests Adapted to Determine the Truth of Supernatural Phenomena." In 1875 and 1876 he was again elected a Vice-President of the Institute. In the latter year he completed an undertaking which had been in his mind, as he tells us, from his very boyhood, that of writing "A Philosophical Treatise on the Nature and Constitution of Man." (2 vols.). The work was reviewed in our journal, and it is interesting to the writer of this memoir, who was also the writer of that review, to find that his friend (who did not know that fact), calls it in his diary "very fair and temperate." It is clear we did not allow friendship to betray us into undue enthusiasm. It will be seen that the bent of Dr. Harris's mind was towards psychological subjects, and, thinking we did not give adequate attention to that branch of anthropology, he joined the late Sergeant Cox in the formation of the Psychological Society. Since then we have seen little of him in these rooms. The weight of years has made his visits to London less and less frequent, though he continued to write in *Modern Thought* and other periodicals for some years longer. It will be seen from what we have said that he possessed a remarkably versatile mind, much varied ability, and great literary talent. Dr. Richardson justly speaks in high praise of his qualities of untiring industry, good humour, and constructive skill. We shall always remember him in this Institute as a colleague and fellow-worker who earned our respect by his accomplishments, our esteem by his high character, and our gratitude by his friendship, which no differences of opinion were ever allowed to interrupt.

E. W. BRABROOK.

DR. H. MUIRHEAD.

In Dr. Henry Muirhead, of Bushyhill, Cambuslang, near Glasgow, his friends must regret an amiable, warmhearted, and intellectual man, and this Institute a valuable supporter. He was born in 1814 in one of the suburbs of Glasgow, and was not gifted by fortune in the outset of his life, being one of those offspring of whom Scotland is so justly proud, whose ambition, energy, perseverance, self-denial, and intellectual power, enable them to triumph over the greatest external disadvantages. After prolonged effort, he was able to afford himself a full University course, and took the degree of M.D. at Glasgow in 1844. He subsequently turned his attention to the department of mental disease, was superintendent, and afterwards proprietor, of a lunatic asylum, and retired with a competent fortune to Cambuslang in 1867. There he devoted himself to the study of science, especially of metaphysics and meteorology, and, by liberal contributions of money as well as by personal effort, to the fostering of scientific progress in Glasgow. He was LL.D. of Glasgow University, *honoris causâ*, President of the Philosophical Society of Glasgow, Governor of Anderson's College there, and of the West of Scotland Technical College; he was a founder of the Public Library and Working Men's Social Union at Cambuslang, and also founded, at a cost of £2,500, the demonstratorship of physiology in Glasgow University which is called by his name. There are doubtless members of the Institute present who will remember how, at the York meeting of the British Association, after Professor Flower, from the chair of Anthropology, had made an eloquent appeal on behalf of our Institute, showing how it was crippled in its publications and other work by the lack of means, Dr. Muirhead, then sitting on the platform, quietly handed over a cheque for 100 'guineas to the Chairman, with the characteristic stipulation that his name should not be mentioned.

Dr. Muirhead closed his useful and blameless life on July 31st, at Cambuslang, at the ripe age of 76.

J. BEDDOE.

MISS NORTH.

Miss Marianne North, born 1830, died 1890, was the eldest daughter of Frederick North, Esq., of Rougham Hall, Norfolk, for many years M.P. for Hastings, and representative of a family eminent in English history. She was well known to the public through the unique and beautiful Museum presented by her to the Royal Gardens at Kew. She built it at her own cost, and covered its walls with her exact and gorgeous paintings of flowers of all parts of the world. The passion Miss North felt for flowers and for painting them, and her great love of travel, suggested the pursuit she followed during twenty years, with strenuous exertion. Her aim was to paint true portraits, so to speak, of all the more important flowers in the midst of their native surroundings, especially of those that are rapidly disappearing before the advance of colonization and agriculture.

In at least eight different journeys she travelled through the border lands of civilisation in North and South America, India, Australasia, and the Cape, besides visiting numerous islands in search of their characteristic flowers. She succeeded admirably in her arduous and self-imposed task, and permanently secured the results in the Museum above referred to. Latterly, her overtaxed strength gave way, and she died in the home she had made for herself at Alderley, in Gloucestershire, where she turned a small garden into a marvel of botanical interest as well as of floral beauty.

It has often happened that botanists have succeeded in establishing the friendliest relations with the inhabitants of the country they visit, for their pursuit is one that attracts the sympathy and goodwill of all classes from the highest to the lowest. Miss North was a conspicuous instance of this success. She made warm friendships and gained esteem wherever she went, so that numerous persons at home and abroad turned to her with a common sense of loyal admiration. Society has been deprived, by her death, of a lady of a warmly sympathetic nature, of rare intellectual gifts and accomplishments, and of a noble and womanly character.

FRANCIS GALTON.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE

GREAT BRITAIN AND IRELAND.

DECEMBER 9TH, 1890.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following elections were announced :—

The Hon. Lady WELBY, of Denton Manor, Grantham.

R. W. SWINNERTON, Esq., of Ellickpore, Berar, India.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From the AUTHORS.—An Album of the Weapons, Tools, Ornaments, Articles of Dress, &c., of the Natives of the Pacific Islands. Drawn and Described from examples in public and private collections in England by James Edge-Partington. Issued for Private Circulation by James Edge-Partington and Charles Heape.

From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE. Correspondenz-Blatt. 1890. No. 9.
From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. No. 12.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. xxxiv. No. 154.

From the SOCIETY.—Journal of the Society of Arts. Vol. xxxix. Nos. 1984, 1985.

— Proceedings of the Society of Biblical Archæology. Vol. xiii. Part 1.

— Proceedings of the Royal Geographical Society. Vol. xii. No. 12.

— Proceedings of the Philosophical Society of Glasgow. Vol. xxi. 1889–90.

— Journal of the Proceedings of the Royal Society of Antiquaries of Ireland. Fifth Series. Vol. i. No. 3.

— Journal of the Royal Statistical Society. Vol. liii. Parts 1, 2, 3.

From the EDITOR.—The American Antiquarian. Vol. xii. No. 6.

— Nature. Vol. xliii. Nos. 1100, 1101.

— Science. Vol. xvi. No. 406.

— Revue Scientifique. Tome xlvi. Nos. 22, 23.

The following Paper was read by the Secretary :—

An apparent PARADOX in MENTAL EVOLUTION.

By HON. LADY WELBY.

Two facts seem to be indispensable to the idea of evolution :—

(1.) Appropriate reaction to stimulus, direct or indirect.

(2.) The invariable tendency of such reaction on the whole in the direction of the development, preservation, and reproduction of life.¹

If, therefore, we suppose a general and grave departure from, and even in some cases an actual reversal of this order, we become responsible for a tremendous leap. We are bound to justify this by irresistible evidence that the facts on which we

¹ "Each acquirement serves as a stepping-stone to the next and each new response is made easier by those previously rendered possible. In this way the correspondence between the organism and the outside world gradually becomes, as Herbert Spencer has urged, both more precise and complex. By slow degrees a more and more harmonious relationship between the two is brought about, the degree of complexity of which we are left to gauge principally by an estimate of the character of the movements executed in relation to the stimuli from which they immediately or remotely proceed." Bastian, "Brain, Organ of Mind." "The tendency at any one moment is simply towards more life, simply growth; but this process of self-preservation imperceptibly but steadily modifies the self that is preserved." Ward, "Psych.," "Encyc. Brit.," p. 72. See also Brown-Séquard, "Forum," August, 1890, p. 643; Maudsley on "Cerebral Cortex and its Work," "Mind," No. 58, pp. 168, 169.

rely are really accounted for by our theory.¹ And we have also to ask whether they could not be as well accounted for on some hypothesis which involved an unbroken continuity from the earliest to the latest phases of development.² Looking at mental evolution from this double point of view, and taking such reliable traces or evidences as we have of the working of primitive minds, what then do we actually find? We begin with an "environment," and an organism in perfect "touch," the external world everywhere impressing itself and its practical meaning on the organism, and the penalty of non-survival everywhere attaching itself to the crime of non-response.³ But suddenly, just when a certain form of organic energy—that which we call brain-power or intelligence—has reached a given point in complexity, this tie apparently breaks.⁴ The energies, till then so economically employed and always making for life, become fatally spendthrift and reckless.⁵ All the long and severe training in appropriate reaction and orderly adjustment counts for nothing; elimination falls into abeyance; and except in the lowest levels of response—like that of selecting proper food—primitive man has to begin from the beginning to understand the world he lives in, and to act accordingly. The result naturally is that the sub-human animal surpasses the human in the very characteristic which gives the man his point of advance, intelligent reaction to reality. For no animals waste time,

¹ "Of the origin of animism perhaps no perfect account has yet been given. It can hardly be said to be obvious why, in uncultured races or individuals, there should arise that invariable tendency to represent natural forces as conscious and anthropomorphic. There remains, however, the difficulty of understanding by what process this rudimentary doctrine of the soul has grown into the great system of developed animism; a system of thought so comprehensive as to hold all nature in a web of vital action and spontaneity; so multiform as to invent some new spirit-race for almost every fresh order of phenomena; so coherent as to create a perfect plexus of ideas that mutually support and interpret one another; finally, so persistent, that even its more extravagant developments can survive for ages in defiance of accurate knowledge." Oughter Lonie, "Animism," "Encyc. Brit.," pp. 55, 56.

² "In this organisation of experiences which constitutes evolving intelligence, there must be that same continuity, that same subdivision of function, that same mutual dependence, and that same ever-advancing consensus, which characterise the physical organisation." Spencer, "Princ. of Psych.," vol. i, p. 388. See also Ward, "Psych." ("Theory of Presentations"), "Encyc. Brit.," p. 192; Max. Müller, "Natural Religion," pp. 162, 163; Ladd, "Phys. Psych.," pp. 18, 19, 199, 618; Foster, "Text Book of Physiology," part I, p. 8.

³ Lloyd-Morgan, "Animal Life and Intelligence," pp. 243, 300. See also Darwin, "Descent of Man," pp. 94-96.

⁴ Darwin, "Descent of Man," pp. 82, 83.

⁵ "To such an extent is this provision for the future life of the deceased carried, as, in many cases, to entail great evil on the survivors. Concerning some Gold Coast tribes, Beecham says, 'a funeral is usually absolute ruin to a poor family.'" Spencer, "Princ. of Sociology," vol. i, pp. 202, 203.

health, energy, hard-earned food, and shelter on the non-existent, much less on the positively "dead." Still less are they so imbecile as to immolate in terror or in honour thereof the finest specimens of their race. But this (under the idea of "ghost" and its equivalents) is just what early man is credited with doing; not fitfully or, accidentally, but deliberately and persistently.¹

Still, it may be objected, there is no doubt of the facts. The imagination of "early man" did really play him false in this wanton fashion. Everywhere we find ghost or spirit, fantastic and grotesque animism, fetish² or totem, cult and myth. And so it may be urged, we are justified in accepting this strange anomaly; vaguely referring it, perhaps, to the analogous fact that the human child's muscular adjustments are less developed than those of the young of sub-human animals both at low and high organic levels. But then the baby does not try to suck with its nose, or later, to crawl on its back; and the child does not cringe to its own toys, or feed its own shadow.³ No doubt it makes great mistakes and requires to have them corrected.⁴ But these are not circumstantial, consistent, and elaborate as in the case of ancient superstition, nor do they include a morbid attention to or delusive inferences from the phenomena of death. And so far as children are "animistic," it is distinctly, as Mr. Herbert Spencer points out, on the dramatic ground.⁵ They are born mimics and "actors." Still it may be pleaded that as man in his childhood had no elders to teach him better, he stereotyped his fancies, and they have become, like other habitual tendencies, organised and perpetuated. But even thus we have to show why the yet earlier correspondence has become so ineffective as to permit such perpetuation; and why the nascent figurative power should wander so far astray.⁶ Mr. Spencer often dwells on "the pertinacity with which the oldest part of the regulative organisation maintains its original trait in the

¹ E. Reclus, "Primitive Folk," p. 304, *et seq.* See also Dorman, "Origin of Primitive Superstitions," pp. 208-13. Ellis, "Tshi-speaking Peoples," p. 171, "Ewe-speaking Peoples," p. 117, *et seq.*

² It will, however, be borne in mind that, as Major Ellis shows, "the confusion which has resulted from the improper use of the term 'fetish' is extreme, and is now probably irreparable." "Tshi-speaking Peoples," p. 178.

³ "A child's mind is like an animal's; it is intensely practical. Ideas, as such, do not appeal to it. The thing, the action, is what the child is after." Dewey, "Logic of Verification," "Open Court," April 24th, 1890. See also E. Reclus, "Primitive Folk," p. xii.

⁴ M. Foster, "Central Nervous System," p. 1069. See also Spencer, "Princ. of Psych.," vol. i, pp. 409, 410.

⁵ Spencer, "Princ. of Sociology," vol. i, p. 144.

⁶ Spencer on "Space Consciousness," "Mind," No. 59, p. 320. See also Maudsley on "Cerebral Cortex and its Work," *Ibid.*, No. 58, p. 179.

teeth of influences that modify things around it"; but here we have to wonder at the fatal ease with which it is lost. The work of the senses is to relate our notions and actions rightly to our environment, and enable us so to respond to it as to accomplish the organic aim. But these senses in man are related to a specially developing brain.¹ Leaving questions of "design" on one side, we find a gradual emergence of ever higher types of activity, depending throughout on unbroken correspondence between thing and thought. We know at least that this is the secret of the optical process; it ought to be that of the "visionary," or at least of the "speculative" process.² But the metaphors of seeing often express to us, by a suggestive paradox, the most dangerous forms of blindness. Why? A physical touch goes from the skin-point to the proper nerve-ganglion and back again on another line; appropriate muscular action follows. But a touch of "emotional" experience seems to go to some "imaginative" centre at random, generally therefore setting the wrong mental muscles in motion. Where then does the imaginative message lose its way, strike the wrong line, evoke inappropriate response, and remain unable even to right itself?³

The link with nature and fact that the developing gift which we call "mind," seems at one stage to have lost, is the power to pass through appearances to reality, in the sense of ignoring illusory and detecting actual characters.⁴ The animal which is deceived by illusion or simulation is in the long run "eliminated." The animal which survives is the one that penetrates all deceptions of appearance and escapes being ensnared by them. And the same is of course true in a more mechanical sense, of all inorganic substances.⁵ Why then did not this primordial order of things translate itself inevitably into the mental process at its first inception, balancing and directing the budding representative power?⁶ We have here no question of scientific or logical acumen, or of any of the subtle products which belong to a later stage of mental growth; no question of "knowing"

¹ Foster, "Central Nervous System," p. 1065.

² James, "Princ. of Psych.," vol. xi, pp. 179, 186, 306. See also Ladd, "Phys. Psych.," pp. 455, 456; Ribot, "Psych. of Attention," p. 11.

³ "The process is in fact much less simple than this, and the term 'reflex action' is now complained of on this ground." Comp. Foster, "Central Nervous System," p. 906. See also Crichton-Browne, "Hygienic Uses of Imagination," "Brit. Med. Journ.," Aug. 24th, 1889; Maudsley, "Theory of Vitality," pp. 298, 311, 312.

⁴ James, "Princ. of Psych.," vol. ii, pp. 384, 385, 387. See also Ladd, "Phys. Psych.," pp. 464-7.

⁵ "Lewes, "Problems of Life and Mind," pp. 69, 118, 119.

⁶ Spencer, "Princ. of Psych.," vol. i, pp. 317, 353.

why or how, or knowing a "self," that knows, but simply of organic correspondence with natural fact in full and healthy work.¹ Man is closely related to all nature, and his ancestry does not end with the animal or even with the organic order; "within" him as "without" are found the same vibrations and the same elements.² Thus it ought to be difficult for mere appearances to mislead the primitive mind.³ Everything fosters the tendency to persist in old grooves; a new departure involves a distinct and even painful effort.⁴ And the delusive ideas which prompt wasteful or injurious action would always lead indirectly to the non-survival of the false thinker.

Comparing then the respective developments of the individual and the race, it would seem that the lowest and the highest centres are firmly linked to and controlled by natural reality, the influence of which vindicates itself in all their varied forms of activity.⁵ Just as the retina gives us a faithful picture of external objects, so the geometrician or mechanician draws us a trustworthy diagram of abstract or concrete forms or paths which "matter" and "force" actually take.⁶ But

¹ "There is an ambiguity in the words 'know,' 'knowledge,' . . . 'to know,' may mean either to perceive or apprehend, or it may mean to understand or comprehend. Only when we rise to intellectual knowledge is it true to say, 'no one could understand the meaning of a straight line without being shown a line not straight, a bent or crooked line.'" Ward, "Psych.," "Encyc. Brit." ("Theory of Presentations"). ". . . what is in consciousness is not necessarily in a clear analytic consciousness; and that we may by a process of deductive reasoning be sure that certain elements are present as factors in a given mental state, while we are yet quite unable to call these elements into a clear analytic consciousness, separated from certain other elements bound to them by long association and habit." Fullerton, "Mind," No. 42, p. 192. See also Lloyd-Morgan, "Animal Life," &c., pp. 308, 365; J. Solomon, "Mind," No. 58, pp. 264, 265; Darwin, "Descent of Man," p. 122.

² Tyndall, "Fragments of Science," vol. xi, pp. 46, 48, 355-7. See also Fiske, "Outlines of Cosmic Philosophy," vol. i, pp. 403, 415; J. McK. Cattell on "Wundt," "Mind," No. 51, p. 436, 437, 439; Winwood Reade, "Martyrdom of Man," pp. 462-7; Ellis, "Tshi-speaking peoples," pp. 325, 327-8.

³ "Animate beings are conceived by every individual, at a very early stage, as possessing internal activity similar to his own, but there is no necessity whatever, nay everything speaks against it, for his also investing with such an activity things moved only by animate beings." J. Pikler, "Mind," No. 59, p. 398. "The paramount influence which surrounding nature has on the development of the human being is unquestionable. It is the more powerful the nearer the people is to the uncultured state, and diminishes in proportion as human art and science gain the power over the forces of nature. For this reason a primitive people ascribe spiritual agencies to those results of nature's laws not understood by them." Dorman, "Origin of Primitive Superstitions," pp. 385, 386.

⁴ ". . . the origin of attention is very humble, and its primitive forms have actually been bound up with the most exacting conditions of animal life." Ribot, "Psych. of Attention," p. 32. James, "Princ. of Psych.," vol. ii, pp. 415-441.

⁵ Lewes, "Problems of Life and Mind," vol. i, p. 145.

⁶ "But what we mean by the universe is the sum of our actual and possible

between the two there lies this fatal zone of falsity, of untrustworthiness, of record, and report. Why do the "middle centres," that is, the imaginative, the emotional centres, run wild in unwholesome beliefs and practices, so deeply implanted in the mind-tissue of the race, that we can identify some of them even now?¹ The highest centres at every stage are in some senses centres of control. Relax them and you release the next lower in grade to over-act their part.² Do we suppose then that the race has really passed everywhere through a stage of promiscuous and disorderly mental action, out of which or through which it nevertheless has dragged intact the sound root of accuracy and order?³ Every mental image would presumably be saturated with what we are now told to call "organic memories." No doubt we could not expect that this would carry man far in acquiring knowledge. But surely it would have checked and tended to starve out, after a brief reign, the senseless versions of natural fact which we find stereotyped for long ages in the history of man?⁴ Baseless vagaries would of course have arisen, but they would surely have withered for lack of nutriment, either in organic tradition or from external experience, so imperious in those days and so rigorous in its penalties. They would have been essentially evanescent, and liable to clash with and efface each other. They would even lack the favourable conditions for survival that the civilised child's fancies have. He is under no ceaseless danger pressure like that of the primitive youngster, dependent every moment, like his parents, on the keenness of his perception and the

impressions. . . Form and number are mere names for certain relations between matters of fact; unless a man had seen or felt the difference between a straight line and a crooked one, straight and crooked would have no more meaning to him, than red and blue to the blind." Huxley on "Hume," p. 118.

¹ A. Lang, "Myth, Ritual, and Religion," vol. i, pp. 8, 9, 11, 29-30. See also Baldwin, "Handbook of Psych.," pp. 217, 267.

² "The doctrine of evolution implies the passage from the most organised to the least organised, or, in other terms, from the most general to the most special. Roughly, we say that there is a gradual 'adding on' of the more and more special, a continual adding on of new organisations. But this 'adding on' is at the same time a 'keeping down.' The higher nervous arrangements evolved out of the lower keep down those lower, just as a government evolved out of a nation controls as well as directs that nation. If this be the process of evolution, then the reverse process of dissolution is not only 'a taking off' of the higher, but is at the very same time a 'letting go' of the lower." Hughlings Jackson, "Croonian Lectures," 1884. "As we rise to higher and higher planes of function we enlarge the office of inhibition. Every higher order of motion regulates, or in other words inhabits, that of the order below. . ." Clifford Allbutt, "Address at Glasgow," 1888, "Brit. Med. Journ.," August 11th, 1888.

³ Baldwin, "Handbook of Psych.," pp. 158-60, 222, 223.

⁴ "A being had arisen who . . . knew how to control and regulate (nature's) action and could keep himself in harmony with her, not by a change in body, but by an advance of mind." Wallace, "Natural Selection," p. 325.

vigilance of his outlook. And he has not got to make his traditions and secure their acceptance and persistence! For the real crux lies in consensus and permanence.¹ The fleeting fancy which comes and goes, incessantly shifting and changing, is a very different matter; and no extravagance in that need cause surprise or question. Further: the pre-intellectual test is first contact, then odour and flavour.² Thus if the primitive individual mind has ever so vivid a dream or waking illusion, it must soon begin to fade and die out unless constantly revived by the sense-tests until then all-dominant.³ Sight is the highest and most intellectual sense.⁴ The primitive man, obliged sometimes to search for food and evade enemies and dangers in the dusk, would rely much on smell and touch.⁵ How do we suppose then that this condition can be satisfied when the "ghost" comes upon the scene?⁶ Let us however, assume this "ghost," and take first the most obvious of the ideas which it indicates, that which the word "spirit" conveys,—Breath.⁷ How did early man come by the idea of a "breath" which survived, and could not merely exert force like wind, but for instance, listen, walk, and eat? At what point did this gratuitous absurdity begin? Supposing a tribal "chief" dies

¹ "Up to this point we have only examined, in our investigation of the mechanism of attention, the external impulsion arising from stimuli and surroundings which causes it to pass from one form to another. We now come upon a much more obscure question, namely, the study of the internal mechanism through which a state of consciousness is laboriously maintained in the face of the psychological struggle for life which incessantly tends to make it disappear. . . . The whole problem consists in this very power of inhibition, of retention." Ribot, "Psych. of Attention," pp. 45, 46. A. W. Howitt, "Journ. Anthr. Inst.," August, 1886, pp. 26, 52.

² "From moment to moment (the untaught human being) sees things around, touches them, handles them, moves them hither and thither. He knows nothing of sensations and ideas—has no words for them. . . . His senses make him conversant only with things externally existing, and with his own body; and he transcends his senses only far enough to draw concrete inferences respecting the actions of these things. An invisible, intangible entity, such as Mind is inferred to be, is a high abstraction unthinkable by him, and inexpressible by his vocabulary." Spencer, "Princ. of Sociology," vol. i, p. 147.

³ Spencer, "Princ. of Psych.," vol. i, pp. 387, 388, 390, 391.

⁴ Lewes, "Problems of Life and Mind," vol. i, p. 131.

⁵ Spencer, "Princ. of Psych.," vol. i, p. 362. See also Whittaker on "Volkmann's Psych.," "Mind," No. 50, p. 494.

⁶ "Of course an insane person may make mistakes; and he is not less liable to do so than other people. But his insanity does not consist in making mistakes; it consists in his inability to recognise that they are mistakes, when the conditions requisite for making such a recognition are afforded him." Mercier, "Nervous System and the Mind," p. 251.

⁷ "The act of breathing, so characteristic of the higher animals during life, and coinciding so closely with life in its departure, has been repeatedly and naturally identified with the life or soul itself." Tylor, "Primitive Culture," vol. i, p. 432. See also Croom Robertson on "Siebeck," "Mind," No. 38 p. 293-5. Ribot, "Psych. of Attention," p. 20.

his "ghost" leaves his "body" as "breath." No doubt the concurrent departure of the "breaths" of his wife and slaves might suggest a breath-community in a breath-world of which individual puffs or sighs might make up wind. And again, the smoke-columns of the funeral pyre, as they were seen to be gradually dissipated, might well be supposed to turn into air.¹ Why then do we not find everywhere a supreme Wind-Deity,² and a swinging fetish to represent the sacred breath-rhythm,—and the heart-beat too?³

Again. Taking certain features of universal experience as the possible source of the most conspicuous class of these vagaries, we have to distinguish the ideas of:—

- (1.) Voice and its echo.
- (2.) Object and its shadow.
- (3.) Object and its reflection.
- (4.) The energy and matter, work-force and stuff of an object; its power to be useful and its tangible mass. All four contrasts are of course reflected in dream.⁴

(1.) Here we have apparent separation in space but complete reproduction in character, although in lessening intensity. Before taking the other points, which are all more or less related to sight, it may be suggested that the primitive ear, rendered acutely discriminative by the constant presence of danger, would be less liable to mistake the echo for an independent voice than the civilised one would be. It could not fail to note the invariable repetition in every detail of sounds which could be accounted for in the usual way.

(2.) Here there is complete distinctness, but the shadow has only the outline produced by obstructed light; no idea of content is given.

(3.) Here we have reproduction in the flat or in the solid; *e.g.*, in the mirror or in an artificial copy. The two are again separable.

(4.) Here we can no longer separate or even distinguish, except mentally.

It follows therefore that while it might well seem possible to distinguish and dedicate to the ghost the meat-shadow or meat-reflection or imitation-meat, the impalpable nourishment of

¹ Dorman, "Origin of Primitive Superstitions," pp. 349, 351.

² Since writing this, I find that Professor Max Müller ("Physical Religion," p. 310), contends that we often do find the storm wind prominently deified. But as he himself subordinates it fire and connects it closely with thunder, sky, &c., I leave the passage as it stands.

³ "The further question as to the comparative non-use of words for 'blood' to express 'soul,' like many other such questions, cannot be here advanced for want of space.

⁴ Spencer, "Princ. of Sociology," vol. i, pp. 192-5, *et seq.*

meat could not be so dedicated because it could not be similarly distinguished, nor would it be perceptible as in the other cases by any of the senses. So with the weapon or tool.

But loss of work-power is shown by signs of wear. If the supposed "ghost" deserted his super-sensuous sphere and took to using real weapons and tools and consuming real food, his devotee would find the first worn and blunted; while, if it was supposed that in this one case the ghost (or good) of the food could be taken and all the rest left, the food after use would acquire an abnormal appearance of which the natural analogue would be the waste product after assimilation. This, for practical reasons, would strike the earlier more forcibly than the later mind.¹ For advancing civilisation tends to ignore that side of life; besides which the increase of abstracting power tends to distract attention from the physically concrete. At all events we should expect to find everywhere traces of a simple and clear distinction between tangible things for actual men (or beasts) and intangible things for imaginary ones.² In very early times "visions" are procured by fasting or intoxicants; so that the idea of providing visionary food would naturally thus find expression. And would there not be attempts to provide with a dedicated object its shadow or reflection? (the effigy we do find in some cases). But that would not be enough with the food. The most deeply established test of the consumption of food would be its disappearance when devoured. Take a man who devotes part of an animal he has killed to the making of a meal for his dead ancestor, keeping the rest for his own family. Credit him with the supposition that the meat has a ghostly identity or double like that which leaves the body at death, that this is what does him good when he eats, and is what the ghost requires and consumes.³ But the dedicator cannot help observ-

¹ "In childhood we feel ourselves to be closer to the world of sensible phenomena, we live immediately with them and in them; an intimately vital tie binds us and them together." Griesinger, "Mental Diseases," sec. 50, 98 (quoted by James, "Princ. of Psych.").

² "The savage thinks of (life) as a concrete material thing of a definite bulk, capable of being seen and handled, kept in a box or jar, and liable to be bruised, fractured, or smashed in pieces." Frazer, "Golden Bough," vol. ii, p. 296. "It is the doctrines and rites of the lower races which are, according to their philosophy, results of point-blank natural evidence and acts of straightforward practical purpose." Tylor, "Primitive Culture," vol. i, pp. 496-502.

³ "With regard to solid food, they believe that the gods make use of the spiritual part of it, leaving the material portion behind." Ellis, "Tshi-speaking Peoples," pp. 73-74. "One sequence of the primitive belief in the materiality of the double is the ministering to such desires as were manifest during life. Originally this belief is entertained literally: as by the Zulus, who in a case named said, 'the Ancestral spirits came and eat up all the meat, and when the people returned from bathing, they found all the meat eaten up.'" Spencer,

ing, sooner or later, that precisely the same result happens in the case of the devoted and the undevoted food. The ghost has taken the good of the one, no one has taken the good of the other. Then let him profanely eat (as, under stress of famine, must surely have sometimes happened), and the food is found to feed him still; the food-ghost has not been consumed! The same thing applies to dedicated corn, if planted later under stress of starvation. And are we to suppose that the devotee makes a distinction between the usefulness of the slave and the usefulness of food? Or does he class the life of the one and the feeding powers of the other in the same category? Is he supposed to notice that after "breath" has left an edible animal another kind of "ghost" remains, which is what the ghost-ancestor or chief wants to absorb as a hungry man does?¹ Of course in one case the practical course seems obvious. The ghost-chief wants a ghost-slave. Then, say the devoted survivors, let us kill one, and release the ghost to go to his master. But they do not thereby send his shadow or his reflection to ghost-land. His dead body continues to cast both. How is it then that they jump to the conclusion (of which there is no evidence in the practical sphere) that the life-force, identity, or "breath" are gone there? Why did not these take with them

"Ecclesiastical Institutions," pp. 673-78. See also Huxley (quoting Lippert), "Evolution of Theology," "Nineteenth Century," March, 1885, p. 355, note; and Tregear's "Maoris," "Journ. Anthr. Inst.," November, 1889, pp. 120-21.

¹ I had never seen this point noticed when the above was written. I now find the following passages in Ellis's "Tshi-speaking Peoples." "This word kra, though generally interpreted 'soul,' does not at all correspond to the European idea of a soul; for it is the man himself, in a shadowy or ghostly form, that continues his existence after death in another world, and not the kra. The latter is rather a guardian spirit, who lives in a man, and whose connection with him terminates at his death," p. 149. "We, too, have a very similar notion to this of the kra, and which is probably a survival of such a belief. A living man is believed to be tenanted by another individuality which is termed a soul, and which reasons with man through what is called 'conscience.' When the man dies, however, we make the soul to go to the next world, instead of the shadowy man; but a good deal of confusion exists in our ideas on this point, and the belief in ghosts, the shadowy outlines of former living men, seems to point to a time when each of the two original individualities was believed to pursue a separate existence after the death of the man." *Ibid.*, p. 155. See also his "Ewe-speaking Peoples." "This belief in every animate and inanimate natural object having two individualities besides its tangible one, will perhaps help to explain much that is still obscure as to the origin of Nature Worship. It must be borne in mind that the kra is not the soul, for the soul, in the accepted sense of the word, is 'the animating, separable, surviving entity, the vehicle of individual personal existence,' whereas every kra has been the indwelling spirit of many men and probably will be of many more." (This seems to imply the need for reconsidering the whole subject in the light of fresh observation.) "Europeans, holding as they do the belief in one 'soul' only, are naturally prone to misconceive a native's idea of two 'souls,' unless, which is rarely the case, they are aware that such a belief is known to exist among certain peoples." *Ibid.*, p. 17.

what had always been associated with them and even reckoned in the same ghostly category.¹

But here we are confronted with the dream theory. The dead ancestor has been seen in dreams, therefore the descendants are sure that he lives somehow and somewhere, and all the rest follows.² Yet surely it would sometimes strike the immolators forcibly that it did not invariably follow that next time they dreamt the chief they dreamt the slave, to correspond with the new state of things. Dreams are not now and surely never can have been as coherent, consistent, invariably repeated as such an idea would require them to be.³ Do we find anything to suggest that when a great chief died, he was dreamt by the dreamers as alone and destitute, while after his funeral with all its attendant ceremonies of provision, he was dreamt surrounded and provided as in life? If not, would not the waste of precious property strike men who had produced or acquired it at much cost of effort, and who had the strongest reasons for laying stress on its absence or presence in all the world they knew of?

The primitive man's digestive process, so far as he was occasionally conscious of it, would surely be his natural "origin" of the "inner." Cultured man connects "dreams" as he does "reflection" with an "inner" which he has acquired metaphysically—in an advanced mental stage.⁴ But to early man if not "outer" reality the dream would only be "inner" in the mucous membrane or the "digestive cavity" sense.⁵ And this sense of "outer" and "inner" may well be launched with us into the world of mind at its earliest stage, since as ectoderm and endoderm it belongs to the first differentiation of the starting-cell.⁶ Therefore, everywhere touch, taste, and smell,

¹ Ellis, "Tshi-speaking Peoples," p. 19. See also "Ewe-speaking Peoples," pp. 105-6; Tylor, "Primitive Culture," vol. i, p. 430.

² Howitt, "Journ. Anthr. Inst.," August, 1886, p. 55. See also Tylor, "Primitive Culture," vol. i, pp. 478, 496, 502.

³ "No class of psychical phenomena has received less illumination from science than dream. Some psychologists pass them by altogether, while others are apt to deal with them in a very hasty and superficial manner. The reason of this neglect is not far to seek. In the nature of the case the facts are exceedingly difficult to reach." Sully on "Delbœuf," "Mind," No. 45, p. 115. "The influence of dreams is so great upon the life of the American Indians that every act and thought is predicated upon this superstition." Dorman, "Origin of Primitive Superstitions," p. 61.

⁴ Reville, "Hibbert Lectures," p. 87.

⁵ Winwood Reade, "Martyrdom of Man," pp. 171-2.

⁶ "The boundary between the internal and external was, no doubt, originally the surface of the body with which the subject or self was identified; and in this sense the terms are of course correctly used. . . . Yet, evident as it seems that the correlatives in and not in must both apply to the same category . . . we still find psychologists more or less consciously confused between 'internal,' meaning 'presented' in the psychological sense, and 'external'

would be the tests by which a visual impression would be tried and confusion averted, whether in the case of dream or of spectral illusion.¹

Again, one of the first traces one would expect to find of the organism's long reflex and automatic training would be an even keener sense in the primitive mind than in ours, of the incongruity of dream-events and objects.² Our range of conception has so widened that there is always a vague reservation or suspense in face of the strangest "surprises." The possibilities have so multiplied. But to our early ancestors the utter dislocation of ordinary experience in dreams would have made it difficult deliberately to accept them as fact, except so far as there was disorder of mind.³ For the more recent the emergence from the automatic level, the more inexorable the demand for the monotony of a normal sequence.⁴ Is not this in fact

meaning 'not presented' but corporeal or oftener extra-corporeal." Ward, "Psych.," "Encyc. Brit.," pp. 37-8. "The body becomes, in fact, the earliest form of self, the first datum for our later conceptions of permanence and individuality . . ." *Ibid.*, p. 56.

¹ "From the day of our birth we have sought every hour of our lives to correct the apparent form of things, and translate it into the real form by keeping note of the way they are placed or held. In no other class of sensations does this incessant correction occur." James, "Princ. of Psych.," vol. ii, pp. 259-60. See also, Frazer, "Golden Bough," vol. i, pp. 121-3; Ward, "Psych.," "Encyc. Brit."

² "The fundamental note of mental insanity, as of all errors of thought and feeling, is the want or loss of a just equilibrium between the individual and his surroundings; the disorder marking a failure of adaptation in himself which is often-times a congenital fault that he owes to his forefathers." Maudsley, "Mind," No. 48, p. 510. See also p. 501. "It is experience in the largest sense of that vague term—real apprehension, feeling and acting—that gives us a place among things and indeed makes these things to be for us." Adamson on "Lotze," "Mind," No. 40, p. 587.

³ "As life is a condition in which an intimate correlation exists between the individual and nature, it is evident that whilst Plato dealt only with ideas of the mind, his system must remain comparatively unprofitable; but it is evident also that since we have learnt to discover the laws or ideas in nature of which ideas in the mind are correlates, it becomes possible to find in nature an interpretation of Plato's true ideas. Once for all, it may perhaps be taken for granted that the ideas of genius can never be meaningless; for its mental life is a reflection in consciousness of the unconscious life of nature." Maudsley, "Theory of Vitality," p. 274. See also Spencer, "Princ. of Psych.," vol. i, pp. 453, 454.

⁴ "It is in fact one of the most fundamental truths in biology that the performance of functions, or in other words, the occurrence of actions of any kind in living matter, tends to occasion structural changes therein. . . . We have at first to do with mere reflex actions; in higher forms of life these actions increase so much in complexity as to become worthy of the name 'instinctive'; whilst in still higher organisms we have what are called 'intelligent' actions in increasing proportion; though always intermixed with multitudes of others belonging to the 'instinctive' and to the reflex categories." Bastian, "Brain, Organ of Mind," pp. 23-5. See also Spencer, "Princ. of Psych.," vol. i, p. 580.

(in some sense) the secret of the "logical consistency" which Mr. Herbert Spencer, Dr. Tylor, and others, point out in primitive inferences.¹ Dreams and delirium alike mean abnormal sequence, and therefore would be less likely by the primitive mind than by ours to be confounded with that real experience of which the secret is continuity. At a later stage we generalise more broadly, and are prepared to allow for larger margins of the possible.² If then we find it difficult to accept the ravings of the primitive mind as a natural stage in an orderly and continuous development of mental power, the concomitant of a brain-growth which certainly was that, what in fact should we have expected to find? Surely the reign of the "matter of fact"; a practical attention to material needs and dangers certified by the senses, and a gradual enlargement of its scope.³ The baby, never dreaming of efforts to turn somersaults or walk on a tight-rope, begins, when it is ready, to run, jump, dance, or climb, after it has achieved walking sedately, which is its first attempt beyond crawling.⁴ We nowhere find random or spasmodic action, convulsion or contortion, although these would make admirable metaphors for much early cult- and myth-making. But sight gives us here perhaps the most significant lesson, for therein the ascending series seems especially gradual and unbroken; up to the moment indeed where

¹ "We must set out with the postulate that primitive ideas are natural and, under the conditions in which they occur, rational. In early life we have been taught that human nature is everywhere the same. Led thus to contemplate the beliefs of savages as beliefs entertained by minds like our own, we marvel at their strangeness, and ascribe perversity to those who hold them. Casting aside this error, we must substitute for it the truth that the laws of thought are everywhere the same; and that, given the data as known to him, the inference drawn by the primitive man is the reasonable inference." Spencer, "Princ. of Sociology," vol. i, p. 111, comp. *Ibid.*, pp. 441-2; Tylor, "Primitive Culture," vol. i, pp. 22, 23, 285, 286.

² Spencer, "Princ. of Psych.," vol. i, pp. 425, 426.

³ "When the evolution of the living organism is traced upwards from the simplest forms to the most complex, and it is found that the evolution of mind proceeds *pari passu* with it, following the same laws and passing through the same stages, either evolution being expressed as a continual building up with the same elements, we have actual evidence that the one element goes with the other." Clifford, "Lectures and Essays," vol. i, p. 291. "Incoherences in experience cannot produce perplexity unless they engross attention with sufficient strength and persistency. This depends on the interest which they excite, and such interest for the comparatively undeveloped consciousness is mainly of a practical kind." Stout, "Mind," No. 57, pp. 29, 30. "Emotional excitement—and at the outset the natural man does not think much in cold blood—quickens the flow of ideas; what seems relevant is at once contemplated more closely, while what seems irrelevant awakens little interest and receives little attention." Ward, "Psych.," "Encyc. Brit." (The doctor or healer is thus more primitive than the priest on "practical" grounds.) See Dorman, "Origin of Primitive Superstitions," p. 354, *et. seq.* Cf. also James, "Princ. of Psych.," vol. ii, p. 258.

⁴ "Mercier, "Sanity and Insanity," p. 289.

even the eye is helplessly dragged into the whirl of folly and delusion—the point where we people nature with monsters, and *de-naturalise* the world we live in. We are accustomed to marvel at the feats of dawning intellect, *e.g.*, in the use of fire and metals, in the domestication of animals, in the making of weapons and tools, which we all agree in ascribing to the earliest times. Nay, more, we are learning further to wonder at the high æsthetic level sometimes attained in those early days. Take the case of the Cro-Magnon cave-men, whose drawings put most of the more modern art to shame, not (as we might have supposed likely) in freshness of fancy, but in physiological accuracy. So with the precision in measurement and skill in erection shown in very early examples of architecture.¹ But here at once we are brought up short by the motive, the mental impetus to which these were due. Once more we find the rising line of mental development as it were deflected; the upward energy begins, if not to fail entirely, at least to start aside and spend itself in morbid and unfruitful forms. Much indeed is actual “fall,” that is, reversal, degeneration. For we have just been following the “cult” of the living, which in fact begins where the organic itself begins. Now we begin to trace the undoing of all this, the “cult” of the dead.² And this, be it noted, just after we have begun to feel and express in a newly-acquired sense, the attraction of the one and the repulsion of the other.³ Modern research seems more and more to emphasize the paradox of elaborate wastefulness, even in cases where the economical bent of nature might be expected to exercise a specially inhibitive power; for example, those brought forward in Mr. Frazer’s “Golden Bough” and elsewhere, of unnatural treatment tending to injure the future mothers of a community. And it cannot be said that here natural selection reverses itself, having worked to a point where the up-growth of moral sense and intellectual power makes for the preservation of the physically unfit. In waste of energy and the barren cult not merely of death, but of disease and suffering, nothing is or can be gained; not even, as might be claimed for some mythical conceptions, an extension of true imaginative power. We are rather making that impossible, by substituting for a

¹ “We have to act in conformity with geometrical principles before we have the slightest power of framing a geometrical axiom.” Leslie Stephen, “Mind,” No. 54, p. 199. See also, Rénouf, “Origin and Growth of Religion,” p. 63.

² A. Lang, “Myth, Ritual, and Religion,” vol. ii, p. 82. See also Doran, “Origin of Primitive Superstitions,” p. 164; Ellis, “Ewe-speaking Peoples,” pp. 107, 111, 113.

³ Spencer, “Princ. of Sociology,” vol. i, pp. 142, 145.

healthy imagination an anarchy of practical delirium which demoralises its energies, disorganises its tissues, and taints its very sources.¹

One more point. We have been dwelling on the idea of the "ghost of the ancestor" as though it were sharply marked off from any idea of a "god" or "gods." But of course this would falsify the best evidence we have, and is indeed impracticable. As a fact, the difficulty is to draw any definite line between ghost, ancestor, parent, hero or tyrant, chief (and later, king), and god.

Professor Robertson Smith, for instance, points out that the relationship between gods and men was primitively conceived in the strictly literal sense of father and offspring. But as such a parentage could not be accepted on the same grounds as all other parentage known (since the main signs of physical reality were all missing), in what sense was the relationship conceived and accepted as "strictly literal?" How did gods and men make up a "natural family"?² This thought takes us far

¹ "However simple or complicated the circumstances, and however simple or elaborate the act by which they are dealt with, the same law obtains throughout, viz., every movement that forms a part of conduct, every act that can be considered intelligent, is an adaptation of the organism to surrounding circumstances; or, briefly put, conduct is the adjustment of the organism to its environment." Mercier, "Sanity and Insanity," p. 106. "Insanity, we find, is a disorder of the adjustment of self to surroundings. This adjustment of self to surroundings is effected by the highest of all the nervous arrangements, and the central and primary factor in insanity is the disorder of those arrangements." *Ibid.*, p. 138. "When he (the lunatic) attempts to think out an elaborate course of conduct he falls into a state of confusion. When he attempts to carry out an elaborate course of conduct he gets astray; he does things wrong, he makes mistakes, he fails to appreciate the force, and to estimate the comparative value of circumstances, and his acts are wrongly directed, confused, and muddled." *Ibid.*, p. 383. "The doctrine underlying disease spirits and oracle spirits is the same, however strange it may appear. Many of those most diseased and abnormal and morbid have for the same reason become the great religious and prophetic teachers of humanity." Dorman, "Origin of Primitive Superstitions," p. 52. (From which it would appear that man is an animal which tends to reckon as the best and highest, that which it learns from the representatives of distortion and failure in the race.) See also Maudsley, "Mind," No. 54, pp. 179, 183.

² "To the negro of the Gold Coast, Nyankupon is a material and tangible being, possessing a body, legs, and arms, in fact all the limbs, and the senses, and faculties of men. He is also believed to have passions similar to those of man. This, however, is but natural, and to the uncultured mind the conception of an immaterial being is impossible." Ellis, "Tshi-speaking Peoples," p. 29.

"Those tribes that have progressed and remember a former condition of greater savagery always describe that condition as one wherein they were animals. Of course the language is metaphorical at first; but this metaphorical language, in connection with the many animal superstitions that have survived their lower state, tends to make fiction grow into reality. A number of travellers have acknowledged that they never clearly understood whether the Indians believed that at one time all men were in the form of beasts or whether they were in the form of men, but with the nature, habits, and disposition of

indeed from the dream, the shadow, the reflection, the echo, the breath. Where, then, is the missing link? Our very idea of mental and spiritual inter-communion in any exalted sense is among the latest of mental products.

But are we not betrayed even by the ambiguities of language into ascribing such ideas to the primitive sense-bound mind? ¹ Where and why do we suppose that early men broke away from the strongest ties they had—those to the actual—and where are we to look for the link which bridges the chasm between the sensuous and the non-sensuous, which in much early animism might well be spelt nonsensuous? Do not all the theories hitherto advanced really imply that the primordial mind had effaced all signs of its pre-intellectual ancestry and bequeathed to the earliest of its descendants of whom we can find traces, a practical *tabula rasa*? ² Do they not one and all involve the assumption that primitive men had to begin from the very beginning in their responses to environment, instead of inheriting a tendency to right reaction or correspondence ingrained in them from protoplasmic days and in the protozoic nursery, a tendency, which has but to be carried over and utilised in every fresh departure in development. ³

animals." Dorman, "Origin, &c.," p. 244, cf. p. 221. "That metaphorical naming may cause personalisation . . . we have good evidence." Spencer, "Ecclesiastical Institutions," p. 685. "Literal interpretation of metaphors leads to worship of heavenly bodies." *Ibid.*, p. 692.

The inconsistency of prevailing inferences on this and like points seems curiously exemplified in the above extracts. The first describes what is surely, on the usual premises, indisputable; the only doubt is whether the premises are sound and what further inference is justifiable. But the others apparently reverse it and credit the earliest mind with that power of consciously using the figurative which we usually claim for the highest culture. Did this insight, then, desert the increasing intelligence? Was experience powerless to modify the loss? See also Robertson Smith, "Religion of the Semites," pp. 30, 31, 83.

¹ Dorman, "Origin, &c.," p. 15. See also, Im Thurn, "Journ. Anthr. Inst.," May, 1882, pp. 361, 362, 375; Risley, "Journ. Anthr. Inst.," February, 1891, pp. 238, 250; Max Müller, "Natural Religion," pp. 149-156; Ellis, "Ewe-speaking Peoples," p. 101.

² "Differentiation implies that the simple becomes complex or the complex more complex; it implies also that this increased complexity is due to the persistence of former changes; we may even say that each persistence is essential to the very idea of development or growth. In trying, then, to conceive our psychological individual in the earliest stages of development we must not picture it as experiencing a succession of absolutely new sensations, which coming out of nothingness, admit of being strung upon the 'thread of consciousness' like beads picked up at random, or cemented into a mass like the bits of stick and sand with which the young caddis covers its nakedness. The notion, which Kant has done much to encourage, that psychical life begins with a confused manifold of sensations not only without logical but without psychological unity is one that becomes more inconceivable the more closely we consider it." Ward, "Psych." ("Theory of Presentations"), "Encyc. Brit."

³ Im Thurn, "Journ. Anthr. Inst.," May, 1882, p. 372. See also Romanes, "Mental Evolution in Man," pp. 388, 389; Lloyd-Morgan, "Animal Life,"

No wonder, if we could believe in such a "break" as this, that the most suicidal as well as grotesque and idiotic forms of cult should not merely have prevailed but have persisted, and not mainly or chiefly in theory, but in grim and savage practice. The marvel then becomes that out of such a seething mass of lunacy there should have emerged that very sobriety of exact thought which criticises it.¹ But if we cannot believe in any such "catastrophic" collapse in the face of the overwhelming evidence of continuity throughout the organic ascent, then the checking force would be tremendous, and the follies would be stamped out as fast as they arose.² How then did we go astray? Of course it is not suggested that crudeness or vagueness were unnatural in the young mind of the race. Immature thought must needs be both; for it certainly cannot be an elaborate reproduction of an exquisite complexity. But the point is that growing intelligence, instead of flying off the curves of reality at arbitrary tangents and becoming fixed therein, would, in the long run, be broadly true to nature.³ When we find a "vestigial"

&c., p. 419; Clark-Murray, "Handbook of Psych.," p. 30; Hughlings Jackson, "Croonian Lects.," 1884, pp. 25, 27, 29.

¹ In a true sense, however, "the psychologist who essays to treat mind evolutionally has to begin at the top of the chain and work downwards; he cannot, like the biologist, begin at the bottom and work upwards." Ward, "Psych. Princ.," "Mind," No. 45, p. 47. See also Spencer, "Princ. of Psych.," vol. i, p. 408.

² James, "Princ. of Psych.," vol. ii, p. 487.

³ "So a man, on a road once traversed inattentively before, takes a certain turn for no reason except that he feels as if he must be right. He is guided by a sum of impressions, not one of which is emphatic or distinguished from the rest, not one of which is essential, not one of which is conceived, but all of which together drive him to a conclusion to which nothing but that sum-total leads. Are not some of the wonderful discriminations of animals explicable in the same way?" James, "Princ. of Psych.," vol. ii, p. 351. "Framed as we are, we can have no *a priori* idea of a movement, no idea of a movement which we have not already performed. Before the idea can be generated, the movement must have occurred in a blind, unexpected way, and left its idea behind." *Ibid.*, p. 580. "Such instinctive analogies have, like other analogies, to be confirmed, refuted, or modified by further knowledge, *i.e.*, by the very insight into things which these analogies have themselves made possible. That in their first form they were mythical, and that they could never have been at all unless originated in this way, are considerations that make no difference to their validity, assuming, that is, that they admit, now or hereafter, of a logical transformation which renders them objectively valid." Ward, "Psych." ("Imagination or Ideation"), "Encyc. Brit." The following is surely an instance of the curious inconsistency of some of our interpretations: we suppose that to the primitive man the stars are at once spangles and heroes: "The principle underlying Sabaism is the belief that all the heavenly bodies are inhabited and taken possession of by spiritual beings, which have migrated thither and made them their habitations. Ignorant as they were of astronomical knowledge, they did not see any absurdity in animating a sun, moon, or star with a brilliant hero. In very truth, a primitive people consider the stars as little spangles stuck on the sky as ornaments, and the sky itself as no farther off than the mountain that skirts their horizon. The sun, above all other natural

organ carried on within us, like a gill-arch or a thumb-toe, we don't treat it as an analogue of the hunch-back and the squint.

Even if we could not find a surviving animal which was enjoying swimming or climbing privileges denied to us poor "humans" as we now are, we should still look for their fossil remains, and even for the water and the tree which fitted such organs.¹

Is not this, then, the gist of it all?

Either (1) we are to suppose an absolute break and reversal in the evolution of mind; a stage of gratuitous incoherence in which the developing imagination has let go all the organised reactive power which up to that stage had made its owner what he was, and proceeds to create a burlesque of the universe,—

Or (2) we have, if not to assume that there is, at least to ask whether there may be in primitive cosmology and natural history an underlying element of true "mental shadow" of outward fact; an unbroken continuity of response in consciousness answering to the unbroken series of structure, function, and organic reactions; a mine, as it were, of valid suggestion, carried on within us and prompting more and more definite expression.²

If we choose the former, if the imagination can thus wholly escape from the established grip of responsive control inherited from the first, then what inference are we to make? The beast

objects, has become a mythical being among the most uncultivated tribes. 'The original parent of the Comanches lives, they say, in the sun. The Chichimecs called the sun their father.' The name for the sun in the language of the Salive, one of the Orinoco tribes, is, 'the man of the earth above.'" Dorman, "Origin," &c., p. 336.

¹ "This hypothesis of subconsciousness has been strangely misunderstood, and it would be hard to say at whose hands it has suffered most, those of its exponents or those of its opponents. . . . Half the difficulties in the way of its acceptance are due to the manifold ambiguities of the word consciousness. . . . There would be no point in saying a subject is not conscious of objects that are not presented at all; but to say that what is presented lacks the intensity requisite in the given distribution of attention to change that distribution appreciably is pertinent enough. Subconscious presentations may tell on conscious life—as sunshine or mist tells on a landscape or the underlying writing on a palimpsest—although lacking either the differences of intensity or the individual distinctness requisite to make them definite features." Ward, "Psych." ("Theory of Presentations"), "Encyc. Brit."

² "We as yet understand nothing of the way in which our conscious selves are related to the separate lives of the billions of cells of which the body of each of us is composed. We only know that the cells form a vast nation, some numbers of which are always dying and others growing to supply their places; and that the continual sequence of these multitudes of little lives has its outcome in the larger and conscious life of the man as a whole. Our part in the universe may possibly in some distant way be analogous to that of the cells in an organised body, and our personalities may be the transient but essential elements of an immortal and cosmic mind." Galton, "Human Faculty," p. 301. See also Reville, "Hibbert Lectures," 1884, pp. 231, 253, 254.

teaches us the lesson and law which ought, according to evolution, never to have been lost or violated. As it fears its physical, it obeys its intellectual superior, when by controlling, taming, and training it he has proved his supremacy. But primitive man simply dreads and assiduously endeavours to propitiate the very objects of which his organic inheritance ought to have taught him the unreality, ever suggesting the safety of neglecting the merely fanciful.¹ One can better understand the "civilised" mind doing things of this kind on a higher plane. That we should in some ways have less instinctive power now, after ages of artificial accretions to experience and the consequent weakening of our ties with outward nature; this seems an obvious probability. For instance, the predominance of mechanical inventive power might promote the carpenter or watchmaker idea of a Creator, and lead to His being called Artificer or Architect or Designer, &c. The life of a complex civilisation abounding in mechanical contrivances of all kinds, does tend to divorce us from simple community with nature. And yet we find that it is under these very conditions that we seem first to resume, in a critical or analytical form, the sober senses which had deserted us so cruelly in those early days just when their help was most needed. On the other hand, if we (provisionally) adopt the second alternative and proceed to test it by the materials now accumulating on all sides, we may find that some of the most grotesque parodies of nature, as well as some of the most repellent or ludicrous ceremonies and observances (religious or other) prevailing in early times, are largely failures of "translation"; failures to express worthily things which lie deep down in the centres of human experience, were true then and are true now, form part of natural order, and may soon for the first time be able to find scientific expression.² If so, what is first needed, here as elsewhere, is an accession of power rightly to interpret "myth, ritual, religion," and mysticism in general. And this, not according to any dogmatic ghost-theory, dream-theory, sun-myth-theory, or any other preconceived assumption, but on their own merits and in relation mainly—for this is what it is specially desired to urge

¹ "As pleasure and pain are only signs that certain of our tendencies are what is deepest in us; as they express the very depths of our personality, of our character; it follows that spontaneous attention has its roots in the very basis of our being. . . . It might be a subject of wonder that so evident and striking a truth . . . should not long ago have been recognised as a common acquisition of psychology, if indeed the majority of psychologists had not obstinately persevered in the exclusive study of the higher forms of attention, that is to say, in beginning at the end." Ribot, "Psych. of Attention," p. 13. Hall and Donaldson, "Motor Sensations," &c., "Mind," No. 40, p. 572.

² Burdon Sanderson's, "Address at Brit. Assoc.," Sept. 1889, "Nature," Sept. 26th, 1889.

—to the facts which the newer schools of psychology are collecting for us, and to recent developments of the study of language, its growth and development on the figurative and psychological side.¹

DISCUSSION.

Mr. F. GALTON: Lady Welby has raised two interesting questions, the one psychological, and the other social, that do not seem to have been directly raised before, and which deserve full discussion. The first question is why barbarians, who may roughly be taken to represent men whose reasoning powers are less developed by evolution than those of the more highly civilised races, should be apparently so much more superstitious and unreasoning than mere brutes, whose order of intelligence is considerably inferior to theirs. Certainly the scientific spirit has been late in making its appearance in the human race. Lady Welby's argument is that brutes are not fanciful, but are practical, and that highly civilised men are much less fanciful than barbarians, and are much more practical; how is it, then, that barbarians are so exceedingly fanciful? Moreover, the fancies of all barbarian races seem to run along parallel lines. Totemism, animism, fetiches, are almost, if not quite, universal among them. This is a psychological question, well deserving careful discussion. Speaking with diffidence, it appeared to him that the power of reasoning at all implies a considerable evolution of the imaginative or representative power beyond the stage in which it is possessed by brutes, and further, that barbarians who possess that power and not much else, were as little competent as children are to distinguish with clearness between the subjective and the objective world. They are very apt to take fancy for fact. They look upon mental

¹ "As then we credit the original people with a stock of religious ideas, it follows that we may assume that certain rites and ceremonies of a religious kind were practised in the primeval period. I must, however, confess that I think their discovery is almost entirely reserved for the inquirers of the future." Schrader and Jevons, "Prehistoric Antiquities of Aryan Peoples," p. 420. Comp. pp. 244, 415. "The creative period of language, the epoch of 'roots' has never come to an end. The 'Origin of Language' is not to be sought merely in a far-off Indo-European antiquity, or in a still earlier pre-Aryan yore-time; it is still in perennial process around us." Dr. Murray, "New English Dictionary," Prefatory Note to Part III. "The investigator . . . learns from the course of growth in each current hypothesis to appreciate its *raison d'être* and full significance, and even finds that a return to older starting-points may enable him to find new paths, where the modern track seems stopped by impassable barriers. . . ." Tylor, "Primitive Culture," vol. ii, p. 422; comp. vol. i, p. 24, 25. "All these facts, taken together, form unquestionably the beginning of an inquiry which is destined to throw a new light into the very abysses of our nature." James, "Princ. of Psych.," vol. i, p. 211. See also Macdonald, "Journ. Anthr. Inst.," Nov., 1890, p. 119; Paul, "Princ. of Languages," pp. xli, xlii, xlv; Geiger, "Development of the Human Race," pp. 2-4; Lloyd-Morgan, "Animal Life," &c., pp. 374-6; Croom Robertson on "Munsterberg," "Mind," No. 60, p. 530; A. F. Shand, "Mind," No. 59, pp. 361, 365, 371, 372; Ellis, "Tshi-speaking Peoples," pp. 185, 186.

association as equivalent to physical connection, and they base logically enough upon these erroneous grounds, a vast superstructure of superstition. If we recollect that the barbarian is certainly not more logical than ourselves, and that we are often very illogical, there appears no great cause of wonder at the enormous amount and variety of superstition to which he is subject, and of which the members of this Institute have very frequent opportunities of hearing described.

The second question raised by Lady Welby is why the superstitious races are not crushed out of existence by those who are less so; why it is that natural selection fails to establish non-superstitious varieties of barbarians in the place of superstitious ones?

This is a question that should be answered by means of an historical inquiry. Is it, or is it not a fact, that in conflicts between races, those who are the most superstitious are necessarily at a disadvantage? He was by no means sure on *a priori* grounds that such would be found to be the case. Superstition and illusion are great factors in national life. Among other things they feed fanaticism, of which we have had not a little recent experience among the Arabs in the Soudan. They encourage belief in supernatural aid and in immunity from the weapons of the enemy. A body of men simultaneously penetrated by such feelings as these are formidable foes. Much might be said concerning even the experience of very recent years, and of the present day, such as of occurrences among the Zulus and just now among the Red Indians of North America, who expect a Messiah and are avowedly most dangerous antagonists. A painfully interesting account of the effect of calm superstition will be found in Mr. Jephson's recent book on Emin Pasha, p. 217-250, where he describes the address made to the Pasha's men by the Dervish ambassadors, who were afterwards martyred by those men. There is scope for an enquiry of extreme historical interest into illusion as a factor of society and of government.

In conclusion, it seemed to him that the two questions he had mentioned, as being raised by Lady Welby's paper, the one psychological and the other social, were eminently deserving of discussion and suitable for it.

Sir F. POLLOCK was unable to agree with the general drift (so far as he was able to collect it) of Lady Welby's paper, or with the particular arguments, for the following reasons (now condensed and re-arranged):—

(1) The superstitions of archaic societies are not a reversal of the order of evolution. What we now call degradation may, under certain conditions, be as much in the order as anything else, and even, for the time being, the only alternative to extinction. It is so with some animals. Again, these (often elaborate) beliefs are not perverted imagination, but conclusions from false theories consciously held.

(2) The argument from "survival of the fittest" is not admissible except where we know that there is effective competition. Thus, any Greek State whose armies had not troubled themselves about omens, &c., might perhaps have had a sensible advantage in the Peloponnesian War. But, as they were all about equally superstitious in this kind, their superstitions may be taken to have done one side no more harm than the other; though the scruples of Nicias (deemed excessive even then) did, in some measure, contribute to the disaster of the Sicilian expedition. In modern times experience shows that the less superstitious people, so far as there is a field of effective competition, do prevail over the more superstitious. Man, like other species, can afford to make mistakes until the conditions are realised which cause the particular mistake to become fatal or dangerous.

(3) It may be a curious and important question why archaic men should have wanted to make a theory of the universe at all. But, since they did theorise, there is nothing to wonder at in their theories being wrong. It would be much more wonderful if they had not been wrong. Our superiority is chiefly in knowing (when we do know) how far we are from complete knowledge. The belief in ancestral ghosts, &c., was a quite plausible pseudo-scientific theory in its time. We can now make it look absurd; but this is equally true of all disapproved and discredited theories. Doubtless the generic resemblance of belief and custom among widely different races is curious and deserving of enquiry; but that is not the point proposed.

(4) A tendency to right reasoning on complex facts is quite different from a tendency to right (*i.e.*, life- or race-preserving) organic "response to stimulus," and ought not to be admitted or surmised without proof. I see no reason for assuming it.

On the whole, I fail to see that there is any paradox to be accounted for. I am likewise unable to understand the "second alternative" indicated at the end of the paper, or the sense in which the word "translation" is used.

Mr. LEWIS directed the attention of the meeting to the following papers, published in the *Journal of the Institute*, as showing the extreme vividness and reality which dreams possessed for savages:—

Rev. Canon Culloway "On Divination and Analogous Phenomena among the Natives of Natal." Vol. i, p. 163.

E. Im Thurn "On the Animism of the Indians of British Guiana." Vol. xi, p. 360.

A. W. Howitt "On some Australian Beliefs." Vol. xiii, p. 187.

He doubted whether they knew enough about the ideas of animals and of uncivilised men to say whether the "break" that Lady Welby spoke of really existed, but he thought that so far as they did know the facts they were very much what Lady Welby considered they should be.

Dr. WILBERFORCE SMITH admitted that in the absence of the

authoress, all criticism must be discounted. He would nevertheless question the soundness of a link in her chain of argument, viz., the theory that a primitive savage might regard the benefit derived from his food as being of a "ghostly" or spiritual nature. For if we might permit ourselves to guess at the experiences and mental operations of the savage, we could not doubt, for instance, that he must have experienced times of scarcity or famine which diminished alike his own supplies and those of the surrounding animals. He must have perceived that loss of food involved loss of flesh alike to man and brute, a tangible material result which would disfavour any "ghostly" theory of nutrition. He must have further noticed that in a slight underfed condition, he was, as a rule, no match for a bigger, better fed antagonist. He would thus require no acute observation or reasoning to become persuaded of the advantage of the material substance afforded by his food. Only by an excessive stretch of imagination, could we suppose him to have regarded the benefit derived from his food, as being "ghostly" or spiritual.

As to modern beliefs in the existence of a spiritual condition of being, the speaker was not sure if he correctly understood Lady Welby's paper to assume the absurdity of all kinds of belief in spirit or ghost (Greek "*Pneuma*," literally "breath" or "air").

Now the field of modern science, within which the authoress arrayed her arguments, included not a few labourers who had done logical scientific work of a high order, whilst their religious views involved in some form a belief in spirit, albeit such belief was not held as a matter resting on scientific demonstration. Considering the existence of such believers, and arguing within the field of modern science, the authoress could not with propriety assume, offhand, that such men's religious belief was absurd.

Mrs. STOPES said there were many interesting points raised in Lady Welby's paper that she would like to have discussed, but she must limit herself to one, that, though modified since she heard the paper at the British Association, evidently still remained the central idea, *i.e.*, the question "Is there a complete break in Mental Evolution?" Mrs. Stopes did not think there was. The conception of the idea of Evolution is that of a series of steps so gradual as to be scarcely recognised as steps, but as mere general progression. The evolution of a race much resembles that of an individual mind. That proceeds through perception and experience to the recognition of itself as a cause. But it soon finds that external to itself and often dominating itself, and other similar creatures, were other greater and more incomprehensible causes. Errors arise from the faulty naming of those causes, through the incomplete mental development that mis-translates signs. So with races at different stages. We, standing upon the experience of centuries of civilisation, translate from the secondary causes the forces of nature, and the truths of science, within which is our conception of the prime cause as Divinity, singular, spiritual,

everlasting; they, with more limited experience and less trained minds, found their external causes many, and rendered false meanings in various superstitions. They do not harmonise their thoughts, but there is the same search after translation. There is no break, but a natural development by longer or shorter paths, through a lower to a higher stage.

The Rev. EDMUND McCLURE also took part in the discussion.

Lady WELBY has made the following observations in reply to the discussion :—

I must begin by expressing my grateful sense of the indulgent attention with which the crude effort of an untrained outsider has been received, and especially of the kind words of the President of the Meeting. I am deeply sensible at once of the gravity and difficulty of the issues raised, of their wide ultimate applications, and of my own inability to do them anything like justice. I shall be more than satisfied if I have succeeded in calling the attention of some who are better fitted to deal with them, to questions which seem to me to lie further back than any ground yet taken on the question of psycho-genesis, with reference to the primitive man's ideas about himself and the world he lives on. For instance, if we accept the view that the first development of imaginative power so overcame the sense of the tangible that the early man's world became subjective, and he took fancy for fact; we are surely assuming a sudden paralysis of what, till then, had been one of the most irresistible of evolutionary factors—the inter-relation and combination of functions, incessantly modified and thus incessantly corrected by the “environment.” When we think what a slave the average man is even now to any “habit” which has its roots in some physiological process, healthy or morbid, it seems inconceivable that in days when the abstracting power was still in its infancy, the imagination should have enjoyed a freedom so entirely unhampered by its recent emergence from more “automatic” conditions. Prof. Lombroso's recent plea for physiologically derived “misoneism”—the primitive repudiation of the strange or new—belongs to this ground. And as to the suggestion sometimes made that animals “see apparitions,” all that seems to be established is their shrinking from and showing terror at whatever is conspicuously alien to their experience, and thus is to them contra-natural. And that instinctive protest answers to what we might expect to find as a primitive bar to the growth of gratuitous invention in a purely fanciful ghost-world. Sheer fright and literal aversion would tend to prevent the deliberate organisation of rite or elaboration of myth. Such superstition as there was would thus be mainly of a negative character; certain localities or practices would be avoided or ignored as recalling what was puzzling and thus alarming and repulsive. Again, if we admit that superstitions may have had a preservative and even an ennobling effect (as, *e.g.*, in the case quoted, of the Dervishes) are we not altering the value of the word and suggesting that such

"superstitions" were not always so ultimately baseless as they seemed, however mistaken, grotesque, or even monstrous their expression? And in the question of "illusion" which, as the President urges, calls for fresh and historical study and illustration, we must distinguish between a primary illusion—one lurking in the central processes of "mind," and modifying all its activities—and those secondary illusions which, depending on defective interpretation (leading to mistaken inference and consequent action), may nevertheless rest upon irrefragable fact. (This, however, brings us to the further questions: where does "illusion" proper, begin? and, what do we include under the term?)

My friend Sir F. Pollock lays down a series of definite propositions which are virtually able re-statements of the ordinary view. (1) He maintains that early superstitions do not reverse an upward or advancing tendency. But he does not touch the question of a "cult of the dead" which I have ventured to raise as itself the expression of a paradox, and which cannot be denied, and is necessarily a reversal; unless, indeed, he means that there is no question of the "dead" in any such cult, but that the use of the word was then, as it is now, an implicit contradiction (*e.g.*, as in the title of a recent book, "Our dead: where are they?" Answer—If dead, how "ours" and why ask?) (2) Here there is, as yet, a lack of enquiry on the basis suggested, so that we must wait for an answer. (3) Here we come to a question which I venture to think worth more than mere statement. Primitive men, we may surely suspect, did not theorise at all in the modern sense, but strove hard for very good reasons (*i.e.*, the relief of natural craving) to use their budding function of "expression"—in whatever form—in conveying to each other certain primordial impulses running within them as strongly as the nerve or blood-currents, and as insistent in demanding outlet or prompting "explosion" as the most fundamental of organic energies. Thus the "generic resemblance of belief" becomes an important part of the point proposed; that would be the result of its actually generic character or origin, and its intimate links with the very starting points of life. (4) Of course a tendency to right reasoning (in the philosophical or scientific sense) is quite different from a tendency to right organic response to stimulus. But I did not intend to relate the two; what I supposed to be linked in an unbroken continuity was organic, rising to conscious and mental "response to stimulus." The real question seems to me here to be, where does the literal use of the phrase end, and the metaphorical begin? As to "breath" taken to represent and express the "dead" or the "double" it seems, on the usual assumptions, absurd. But question these, and, of course, there may be good reasons for its symbolic selection, as there may be important realities which it symbolises better than anything else within reach could do. Everywhere the question recurs: Are we quite sure that our tacit assumptions are invulnerable? Have we begun far enough up in the stream of "experience," or penetrated

far enough into the secret springs of "mind" to justify them? This remains to be seen. But apart from disabilities, which no one can feel more strongly than myself, it is obvious that within the limits of a single paper, only the barest indication can be given of the line of thought suggested, and but few out of many points even touched upon.

Mr. FRANCIS GALTON exhibited some Patterns of Finger Marks. (See page 360.)

JANUARY 13TH, 1891.

E. W. BRABROOK, Esq., F.S.A., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following elections were announced:—

FRANK PEARCE, Esq., of Lake Road, Landport, Portsmouth.

L. A. WADDELL, Esq., M.B., of Darjiling, India.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From Dr. BEDDOE.—*Ethnographie de la France.* By Alph. Castaing.

From the AUTHOR.—*The Convolutions of the Brain.* By Sir William Turner, Knt.

— *L'Atlantide.* By Ferdinando Borsari.

— *Censo General de la Ciudad de Buenos Aires, 1887.* 2 vols.

From the PUBLISHER.—*Folk-Lore.* Vol. i. No. 4.

— *Der Hohencultus Asiatischer und Europaischer Volker.* By Ferd. Freih. v. Adrian.

From the STATE BOARD OF HEALTH, MASSACHUSETTS.—*Forty-eighth Report to the Legislature of Massachusetts, for 1889.*

— *Twenty-first Annual Report.*

From the GOVERNMENT OF PERAK.—*The Perak Government Gazette.* Nos. 28, 31, 32, 34.

From Professor AGASSIZ.—*Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College for 1889-90.*

From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—*Zeitschrift für Ethnologie.* 1890. Heft 5.

- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vii. No. 1.
- From the ESSEX FIELD CLUB.—The Essex Naturalist. Vol. iv Nos. 7-9.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie. 1890. October, November.
- From the INSTITUTION.—Journal of the Royal United Service Institution. No. 155.
- From the SOCIETY.—Proceedings of the Society of Biblical Archaeology. Vol. xiii. Part 2.
- Proceedings of the Royal Geographical Society. Vol. xiii. No. 1.
- Journal of the China Branch of the Royal Asiatic Society. Vol. xxv.
- Journal of the Society of Arts. Nos. 1986-90.
- Bulletins de la Société d'Anthropologie de Paris. Tome xii. 1889. Fas. 4. Tome i. 1890. Fas. 1.
- Bulletins de la Société d'Anthropologie de Bruxelles. Tome viii.
- Bulletins de la Société Impériale des Naturalistes de Moscou. 1890. No. 2.
- From the EDITOR.—Nature. Nos. 1102-1106.
- Science. Nos. 407-412.
- L'Anthropologie. Tome i. No. 6.
- Revue Scientifique. Tome xlv. Nos. 25, 26; Tome xlvii. Nos. 1, 2.
- Bullettino di Paletnologia Italiana. Tomo vi. Nos. 7-10.

EXHIBITION of a SPECIMEN of the STONE used by ADMIRAL TREMLETT to cut marks on the GRANITE of which the BRETON DOLMENS are formed.

By A. L. LEWIS, Esq., *Treasurer*.

MR. LEWIS said: I exhibit to-night, as having some affinity with the subject of Mr. Rudler's paper, a stone sent to me for inspection by Admiral Tremlett, who says he believes it is the kind of stone with which the dolmens at Carnac and Locmariaquer (Brittany) were sculptured. It is pronounced by the Geological Museum authorities to be jasper, and there are three varieties of it round about Carnac, red, yellow, and grey. The yellow is compact and by far the hardest, and with it Admiral Tremlett easily cut the coarse granite of which the dolmens are constructed; the red is also good, but it is more brittle. There is a vein of stone resembling that exhibited running across a

granite rock near Carnac, but its colour is that of steel or iron. Admiral Tremlett has found the red and yellow varieties loose after rains and near to the surface; but in the pits where they dig out clay there are quantities of it, mostly in blocks, but not of a large size, and frequently found with pointed ends convenient to work with.

The peculiar markings which are found on some of the dolmens of Brittany have often been brought before our notice, especially by Admiral Tremlett, and the question has often arisen whether stone tools were hard enough to have made them, or whether they must of necessity be referred to a metal-using people. Admiral Tremlett's experiment appears to show that they could have been made with stone tools.

EXHIBITION of a FIRE SYRINGE from BORNEO.

By R. BIDDULPH MARTIN, Esq., M.A.

MR. MARTIN said: The fire syringe which I have the honour of exhibiting comes from British North Borneo. It is not a good specimen of this interesting domestic appliance, but curious because these syringes are rapidly disappearing and are difficult to obtain. Mr. Beaufort, who sends it to me, tells me that he sends this in place of a better one that he hopes some day to be able to procure. They are, I believe, confined to the West Coast. The better ones are made of wood: this appears to be of lead, or lead and antimony; at the end is a notch apparently to rest on a stick held in the hand, wherewith better to sustain the stroke by which fire is produced. This action of producing fire is by no means easy, and I understand that Europeans who have lived many years in the country find it difficult to get the knack of obtaining fire, which a native will produce in a few minutes. A good specimen of the fire syringe was exhibited in the Colonial Exhibition, and I believe is now in the possession of Sir Alfred Dent.

Mr. C. H. READ, F.S.A., made some remarks on the above.

Mr. READ exhibited some specimens of worked Jade from British Columbia, and a bored stone from San Juan Teotihuacan.

Mr. J. EDGE-PARTINGTON and Mr. C. HEAPE exhibited an Ethnographical Album of the Pacific Islands.

The following Paper was read by the Author :—

*On the SOURCE of the JADE used for ANCIENT IMPLEMENTS in
EUROPE and AMERICA.*

By F. W. RUDLER, F.G.S., *Hon. Sec.*, Anthr. Inst.

IT is not a little remarkable that the interesting controversy respecting the source of the Jade used in prehistoric times, although freely discussed on the Continent and in America, has never, I believe, been formally submitted to the Anthropological Institute.¹ As certain mineralogical discoveries within the last few years have tended to modify considerably the character of the controversy, it has occurred to me that it might be interesting to bring the subject before our members, especially as discoveries in mineralogy are apt to escape the notice of Anthropologists.

It may be well at the outset to explain briefly the nature of the problem and its difficulties. A certain mineral called *jade*, or a small group of minerals known popularly under this generic name, has, or until lately was supposed to have, a very limited geographical distribution. Its occurrence, at least in quantity, was believed to be limited to Turkestan, Burma, China, and Siberia; and to New Zealand, New Caledonia, and some other islands in the Pacific. It has been held, until quite recently, that jade is not found as a native mineral in either Europe or America.

Yet, as everyone knows, implements wrought in this material are found widely distributed in prehistoric sites in Western Europe, and in North, Central, and South America.

Whence then was the material derived?

Some anthropologists have been bold enough to turn their eyes towards New Zealand and the Pacific, while others with less temerity were content to look to Central Asia. The question of the source of the jade thus became an anthropological question of extreme interest. It was generally assumed that the jade found in the ancient sepulchres of France and Germany, and in the lake dwellings of Switzerland and other European localities must have been brought from somewhere in the East, either in a raw state—for chips and sawn fragments have been found in some of the Swiss stations—or more usually in the form of worked implements. It has been held that the

¹ The late Mr. H. M. Westropp contributed a note on this subject, published in the "*Anthropological Miscellanea*," "*Journ. Anthropol. Inst.*," vol. x, 1881, p. 359. See also Mr. James Hilton's "*Remarks on Jade*" in the "*Archæological Journal*," vol. xlv, 1888, p. 187.

early races of Europe may have brought their much-prized implements of jade from an Asiatic home, and handed them down from generation to generation; or that such implements may have passed from tribe to tribe by way of barter, thus suggesting a very early trade-route with the Orient. In either case the implements were invested with peculiar interest.

The interest was perhaps increased when, turning from Europe to the New World, it was found that objects wrought in jade were widely distributed among the ancient monuments of America. From Alaska in the North, all down the Western sea-board of the Continent as far South as Peru, jade objects were found in greater or less abundance; and as jade had not until lately been recognised in the American Continent, it was assumed with great show of reason that the implements, or, if not the implements, at least the material of which they were worked, must have come either from New Zealand by way of the islands of the Pacific, or more probably from Central Asia or Siberia by way of Behring Strait, thus indicating early intercourse, certainly Pre-Columbian, between the Old World and the New.

Among those who entered into the controversy with special ardour, the first place must be assigned to the late Professor Heinrich Fischer, of Freiburg-in-Baden. Advocating the exotic origin of all European jades, he worked out his subject in its most minute ramifications with a perseverance characteristically Teutonic, and embodied his results in a well-known work which forms a complete repertory of references.¹ Many years ago, when the question was being warmly discussed, I had the opportunity of examining the professor's collection of jade in the Museum of the University of Freiburg. It was Fischer perhaps more than anyone else, who, by his voluminous writings gained wide credence for a theory which I believe is now destined to be overthrown, although at one time it seemed to me the only feasible explanation of the facts.²

It is clear that the theory of early intercourse with the East is open to two sources of fallacy. In the first place the implements on which the discussion is based, may not, after all, be of genuine jade. Jade is a fine-grained mineral-substance, not always easy to identify. Its physical characters are not sufficiently definite to enable the mineralogist in many cases to

¹ "Nephrit und Jadeit, nach ihren mineralogischen Eigenschaften sowie nach ihrer Urgeschichteilhen und ethnographischen Bedeutung." Von Heinrich Fischer. Zweite Ausgabe, Stuttgart. 1880. 414 pp. The first edition appeared in 1875.

² In an article "On Jade and kindred stones" in the "Popular Science Review" for 1879, p. 337, I gave, at the editor's request, a sketch of the state of opinion at that time.

determine by mere ocular inspection whether a given material is true jade or not, especially if the material is worked into an implement with a polished homogeneous surface. There is no doubt that implements have often been set down as jade on insufficient evidence; any dark fine-grained greenish stone being at once regarded as jade, without chemical or microscopical examination; in fact, the destructive nature of such an investigation usually precludes its application to objects of value.

But even assuming that a given implement from a particular locality is really jade, can we be sure that the material is not indigenous to the country in which it was found? Here is the second chance of error. It is true that the jade is not by any means a common substance; but it is likely that, being in its rough state unattractive to the eye, always without crystalline form and usually of sombre colour, it may have escaped observation. Early man, whose eyes were specially trained in searching for stone suitable for weapons and implements, may have found it where the man of the present day would overlook it. It is a substance which needs to be specially sought for, and who can say that the mountains of Southern Europe will not, after all, yield it to the diligent seeker? If the mineral can be found in Europe and in America, the jade question at once loses its anthropological importance. It is my desire to call the attention of the Institute to the recent discovery of unworked jade *in situ* both in Europe and in North America, and to show how these discoveries tend to overturn Fischer's hypothesis.

As the mineralogical characters of jade are often extremely obscure, few mineralogists will now pronounce on the character of a given implement with a polished surface, unless he be permitted to partially destroy it. In the year 1863 M. Damour presented to the French Academy of Sciences a valuable memoir, in which he showed that under the common name of jade at least two distinct minerals had been previously confounded.¹ He therefore proposed to establish a new species under the name of *jadeite*, retaining the old mineralogical term *nephrite* for the typically oriental *jade*. The chief physical distinction was found in density, that of jadeite being above 3, and rising in some cases to 3·34, while the specific gravity of nephrite was rarely above 3, and generally not more than 2·9. This is the easiest means of distinguishing between the two stones, and is usually, though not perhaps always, decisive.

¹ "Notice et analyse sur le Jade vert: Réunion de cette matière minérale à la famille des Wéserites." Par M. A. Damour. "Comptes Rendus," t. lvi, 1863, p. 861.

Again, the hardness of jadeite is rather greater than that of nephrite, so that it will scratch the latter; but neither of the minerals is quite so hard as quartz. It is a popular error to suppose that jade is a very hard stone; its prominent characteristic, which confers such value upon it as an implement-yielding material, is not so much its hardness as its toughness—a property due to the closely-felted arrangement of the fine fibres and scales of which it is generally composed. Microscopic characters are not always sufficient to separate the two kinds of jade. Mr. Merrill has usefully pointed out¹ that the jadeites are generally more granular or scaly-fibrous in texture, while the nephrites are uniformly fibrous and compact, a distinction sometimes detected by a hand-lens or even by the unaided eye. No safe distinction can be based on colour, though it may perhaps be said that jadeite is generally of a more decided green than nephrite. The only absolutely certain means of distinction is found in chemical analysis. The nephrite is a calcium and magnesium silicate, and is now universally regarded as a member of the hornblende group, the white nephrites being varieties of *grammatite* or tremolite, while the green are varieties of *actinolite*. The jadeite is found on analysis to be essentially an aluminium and sodium silicate, perhaps allied to spodumene.² Another mineral of dark colour and fine grained texture, often regarded as jade, was separated by Damour as a "new species" under the name of *chloromelanite*.³ It is distinguished by its density ranging as high as 3·4 to 3·6.

Damour, who was the first to call attention to the distinction between nephrite and jadeite, had his attention drawn to the subject by the magnificent specimens of worked jade which found their way to Paris after the sacking of the Emperor of China's summer palace, Yuen-min-Yuen, at Peking. The Chinese, who have always been skilful workers in jade, and great admirers of the material, have probably obtained their supplies at different times from different sources. Mr. Raphael Pumpelly in his "Geological Researches in China, Mongolia, and Japan," a work giving the results of explorations between the years 1862 and 1865, refers to the occurrence of jadeite in the

On *white* jade, see his paper: "Analyse du Jade Oriental: Réunion de cette substance à la Trémolite." *Annales de Chimie et Physique*, sér. iii, t. xvi, 1846, p. 469. Attention may also be directed to his paper: "Sur la composition des Haches en pierre trouvées dans les Monuments celtiques et chez les tribus sauvages." Par M. A. Damour. *Comptes Rendus*, lxi, 1865, pp. 313, 357.

¹ "On Nephrite and Jadeite." By F. W. Clarke and G. P. Merrill. "Proc. U. S. Nat. Museum," vol. xi, 1888, p. 128.

² See Dr. Krenner, "Neues Jahrbuch f. Mineralogie." 1883, ii, Heft i, p. 173.

³ *Comptes Rendus*, t. lxi, 1865, p. 364.

mountains of Southern Yunan, where it is known as *fei-tsui*.¹ A great deal of the Chinese jade appears to have been derived from the Kuen-lun Mountains, where it is said the Chinese have been familiar with its occurrence for some 2,000 years. The brothers v. Schlagentweit visited the district, and in 1873 Hermann contributed a valuable paper on the subject to the Bavarian Academy of Sciences in Munich.² About a year afterwards, the late Dr. Ferdinand Stoliczka, of the Geological Survey of India, who was attached as naturalist to the second Yarkand Expedition, described to the Geological Society of London his visit to the extensive jade quarries in the Karakash Valley, on the southern borders of Turkestan.³ The jade is described as being milky white, pale green, or dark green in colour; slightly softer than quartz, easily worked when fresh, but acquiring hardness on exposure, as is the case with so many other stones. The jade appears to occur in veins in metamorphic rocks consisting of hornblende gneiss, hornblende schist, and mica schist. Dr. Cayley also visited the quarries, and described them in "Macmillan's Magazine." Specimens brought home by him are in the Museum of Practical Geology. It should be added that the jade of the Kuen-lun Mountains is nephrite.

After the Chinese were expelled from Yarkand in 1869, these jade quarries were deserted. A source of jade of which the Chinese were not slow to avail themselves exists in Northern Burma. Of its mode of occurrence here we knew but little until after our annexation of Upper Burma. In 1888 a blue-book, issued at Rangoon, gave a report on these jade quarries.⁴ It is said that the discovery of green jade in Burma was accidentally made by a Yunanese trader in the 13th century. In 1784 a long-continued struggle between Burma and China was brought to an end, and from that date a regular trade has been carried on by the Chinese traders, who have often lost their lives by malaria in their journey to the jade country. The jade mining country is a large tract, chiefly on the west bank of the Uyu River, the town of Mogaung being the headquarters of the trade. The quarries are worked by Kachins, Shans, and Burmese, but the Kachins regard themselves as the rightful

¹ "Smithsonian Contributions to Knowledge," vol. xv, 1866, p. 118.

² "Ueber Nephrit nebst Jadeit und Saussurit im Künlün-Gebirge." "Sitzungsber. d. math.-phys. Classe d. k. b. Akad. d. Wiss. z. München." Bd. ii, 1873, p. 227.

³ "Quart. Journ. Geol. Soc.," vol. xxx, 1874, p. 568. See also, "Records of the Geol. Surv., India," vol. vii, p. 51; and "Scientific Results of the Second Yarkand Mission," 1878, p. 18.

⁴ Vol. xxiv, 1871, p. 452.

⁵ "Proc. of the Chief Commissioner, Burma, for the month of August, 1888" (Rangoon.)

owners of the quarries. The Burmese jade is jadeite, sometimes green, and sometimes brownish and greyish. It is thus seen that jade is found in China, Turkestan, and Burma, but it is believed that Burma alone is now practically the sole source of Chinese jade.

It is difficult to understand how jade from any of these sources found its way to Europe, but probably advocates of the early trade-theory would prefer the Turkestan locality. Another source of Asiatic jade is in Siberia, but though possibly this might yield materials for transmission to Behring Strait, it is hardly likely that so remote a source could be utilised for the ancient European implements. M. Alibert, whose workings for graphite near Irkutsk have been successfully carried on for many years, has brought over from time to time some very fine blocks of a beautiful dark green nephrite obtained as boulders in the valleys of the Batougol Mountains, west of Irkutsk. Examples are familiar through M. Alibert's liberality, in most of the large museums in this country and on the continent.

To whichever of these Asiatic localities we turn, we are met by grave difficulties in supposing that they yielded the jade of our European implements. Some of the Swiss implements are wrought in nephrite and some in jadeite. It has been pointed out with reference to the pile dwellings that nephrite implements are rather characteristic of stations on the eastern lakes (*e.g.*, Lake Constance), and jadeite of those on the western lakes (*e.g.*, Lake Neuchatel). In France, jadeite predominates.

Dr. Munroe, in his admirable work on the "Lake Dwellings of Europe,"—a work which was not published when I first drafted this paper—estimates that in all Europe we have found about 500 or 600 worked objects in nephrite, 300 or 400 in jadeite, and about 200 in chloromelanite. From Lake Constance alone he records considerably more than 1,000 jade implements, one station on this lake—the station of Murach—having supplied nearly 500 implements, with 154 chips and sawn fragments, ranging in size from that of a finger nail to a few inches.¹

Professor Von Fellenberg, of Berne, to whom we are indebted for many analyses of Swiss jade implements, referring to the subject in 1869, said with perfect fairness that he should hold all of them as having been derived from the East until mineralogists should show him the mineral in the mountains of Switzerland, or as pebbles in the drift gravels, or in the

¹ See also Dr. Lee's translation of Keller's "Lake Dwellings" (2nd edition, 1878), containing "Notes on Jadeite and Jade," by Thomas Davies, F.G.S., vol. i, p. 683.

Nagelfluë.¹ It should be pointed out that Dr. Arzuni, of Berlin, has since detected differences in the microscopic structure of the nephrite of the Swiss implements, and that of Turkestan and Siberia, which are regarded as sufficiently distinctive to disprove an Asiatic origin for these objects in Switzerland.² Professor Damour has found a pebble or boulder apparently of jadeite, at Ouchy on the Lake of Geneva;³ and a piece of crude jadeite, described as "green jasper," has been recorded from Monte Viso in Piedmont (*Ibid*, 1316); but such pieces would be regarded by Fischer and his followers as accidental fragments. Yet it is difficult to believe that whenever a piece of jade is found in Europe, it should have been transferred thither by human agency.

Many years ago an angular, smooth-faced block of a dull-green mineral, as large as a man's hand, was found at a depth of several feet in sand at the alum works at Schwemsal, near Leipzig. At first it was regarded as a mass of prase or greenish quartz, but its extreme toughness raised a doubt, and on chemical examination it was found to be nephrite. This occurrence was recorded by Breithaupt, but Fischer insisted that it must be a block of Asiatic jade accidentally dropped. It seems however, more likely that, as it occurred in the drift of the North German plain, it may have been transferred, perhaps ice-borne, from Scandinavia. It is true no jade has yet been recorded from Scandinavia, but it is by no means unlikely to occur among the hornblende rocks of the remote parts, still unexplored geologically.

Although no solid arguments could well be founded on isolated occurrences, yet the evidence becomes cumulative when several such finds are recorded. Thus it was reported towards the end of the last century that jade pebbles had been found in the drift of Potsdam, near Berlin, and specimens believed to be from this locality are preserved in the museum at Berlin. But we will not insist on the authenticity of these old discoveries. Quite recently, however, three rolled pieces of nephrite have been found, on separate occasions, in Styria. Two of these are in the Joanneum at Gratz, and the third in the little museum at Leibnitz. It is believed that two of them were obtained from the bed of the River Mur—the river on which Gratz is seated—and the third from that of the River Sann. The occurrence of the Sann nephrite has been critically examined by Dr. A. B. Meyer, of the Dresden Museum,⁴ who for many years has been

¹ "Verhandl. d. schweiz. Gesellschaft in Solothurn," 1869.

² "Zeitschrift für Ethnologie," 1883.

³ "Comptes Rendus," t. xcii, 1881, p. 1316.

⁴ "Der Sannthaler Rohnephritfund." Von A. B. Meyer, "Abhandl. d. Isis in Dresden," 1883, p. 77.

a very strong opponent of the exotic origin of European jades, and has written voluminously in reply to Professor Fischer.¹ It appears that an itinerant dealer in antiquities, who travels about the country collecting from the peasants, called at the Joanneum, and sold the jade for 20 kreuzers. It is a flat, polished pebble of triangular shape, first mistaken for a partially-worked celt. The dealer, Warthol, stated that he bought it of a peasant who found it near St. Peter, about six miles north of Cilli, in the valley of the Sann, and Dr. Meyer on visiting the locality believes that the statement is correct, though he could find no other jade pebbles in the stream.

Within the last few years nephrite has also been found under circumstances of interest at two localities in Silesia. Herr Traube, of Breslau, obtained from near Jordansmühl, in Silesia, a mineral which he at first took for a hard serpentine, but which turned out on chemical examination to be true nephrite. It occurs in serpentine associated with granulite, and might be readily overlooked by even a careful observer.² Having had his attention thus called to the subject, Traube in 1886 found another occurrence of nephrite in Silesia, this time in the serpentine at the well-known arsenical pyrites mines near Reichenstein.³ It is true that objects of worked jade have not been recorded from Silesia, but the discovery of the mineral *in situ* at two localities in this country, where its existence was previously unsuspected, shows that its distribution is wider than is generally supposed.

Jade implements have an extensive distribution along the North-Western coast of America, stretching through British Columbia and Alaska, and extending here and there some distance inland. Axes, adzes, drills, and other objects of jade are found in Indian graves, in old shell-heaps, and on deserted village sites. Dr. G. M. Dawson, assistant director of the Geological Survey of Canada, who has taken great interest in the subject, has recorded the discovery of two small boulders of jade, partly worked, in the lower part of the Frazer River valley, one at Lytton and the other at Yale.⁴ The specimens

¹ "Die Nephritfrage kein ethnologisches Problem: Vortrag gehalten zu Dresden im März, 1883, von A. B. Meyer." (Berlin, 1883.) An English abstract appeared in "The American Anthropologist," July, 1888, p. 231. See also his fine work; "Jadeit-und Nephrit-Objecte: König. Ethnographisches Museum zu Dresden." Leipzig, 1882.

² "Neues Jahrbuch für Mineralogie." III Beilage-Band, 1885, p. 412.

³ "Ueber einen neuen Fund von anstehendem Nephrit bei Reichenstein in Schlesien." N. Jahrb. f. Min., Bd. ii, 1887, p. 275.

⁴ "Note on the occurrence of Jade in British Columbia, and its employment by the natives." By George M. Dawson, D.Sc., F.G.S., &c. "Canadian Record of Science," vol. ii, No. 6, April, 1887.

illustrate the method by which the stone was worked. One boulder has been laboriously sawn into rough shape, probably by friction of a thong or piece of wood worked with sharp sand. The stone was cut from opposite sides, and when the cuts were sufficiently deep the medium ridge was broken, and the block thus separated into two pieces. The roughly-shaped tool thus sawn out was afterwards ground and polished.

Dr. Dawson, from his minute acquaintance with the characters of the pebbles in the rough beaches along the more rapid parts of the Frazer River, and especially from a peculiarity of polish due to the action of wind-drifted sand at low water, believes that these jade boulders are of indigenous origin. He inclines to the view that the British Columbia jade, so far from having been obtained from Siberia, is an autochthonous mineral produced by the alteration of volcanic material, and believes that, although not yet found *in situ*, it will be discovered among the highly altered volcanic series of the carboniferous and triassic strata.

After the acquisition of Alaska by the United States, a large collection of jade implements from this territory was deposited in the United States' National Museum in New York. They consist chiefly of adzes, drills, and knife sharpeners, and the collection has been critically studied by Professor F. W. Clarke and Mr. G. P. Merrill.¹ From Professor Clarke's analyses it appears that the Alaska jade is true nephrite, whilst Mr. Merrill's microscopic investigations show that it is not to be distinguished structurally and optically from the nephrite of Siberia or New Zealand. It appears, however, to be of native origin. The natives of the coast indicated that the material was found in certain mountains inland, and after some futile attempts the locality was at last visited by Lieutenant G. M. Stoney, who actually found the jade *in situ*. The locality, known as the Jade Mountains, is situated north of Kowak River, about 150 miles above its mouth. Specimens brought to New York were found on examination to be chemically and microscopically identical with the material of the Alaskan nephrite, thus utterly displacing the old Siberian barter-hypothesis.

It may be mentioned that Professor Nordenskjöld, in his voyage of the "Vega," mentions the occurrence of a jade implement at Port Clarence, a point as far north as 65° latitude.

At the same time, some so-called jade implements from Point Barrow are found to be formed of a peculiar variety of pectolite.

We are also indebted to Professor F. W. Clarke and Mr. G. P.

¹ "Proceedings of the United States' National Museum," vol. xi, 1888, pp. 115-130; with plate showing microstructure.

Merrill for a careful study of a series of Central American jade implements, principally from Costa Rica.¹ Among these were several of jadeite, associated however with others of quartz and certain ill-defined substances somewhat like jade externally. In like manner the Mexican jades examined by those authorities were found, as might be expected, to be jadeites. M. Boban, the well-known dealer in Paris, brought from Mexico a large collection of hatchets, amulets, idols, &c., which were found by Damour to be jadeite. Mr. G. F. Kunz, of New York, possesses probably the largest known axe of jadeite, said to have been found in the province of Oaxaca, in Mexico, and remarkable for having a human form sculptured upon it.²

Although jadeite objects are not uncommon in collections of Mexican antiquities, and the material probably formed one of the most important of the valued greenstones known to the Aztecs as *Chalchihuitls*, yet it is to be noted that no jade has yet been found in Mexico. At the same time, some eminent geological authorities have expressed their opinion that it probably exists in the Valalta in Oaxaca. It was perhaps found by the ancient workers in the form of pebbles or boulders, as is so often the case with jade elsewhere, and not *in situ* in the rocks.

The well-known occurrences of jade in Oceania need not detain us, because I can hardly think that it has much serious bearing upon the question at issue. The extensive use of nephrite, or punamu, by the Maories, is well known to every one by the beautiful examples of meres, tikis, adze-heads, and other objects which grace every ethnographical cabinet. Incidentally I may remark that I have occasionally examined specimens of so-called New Zealand jade, which turned out to be merely green serpentine. Although true nephrite occurs in considerable quantity among the metamorphic rocks of the west coast of the South Island, yet the ancient Maoris evidently made much use of boulders, as some of their objects testify. In New Caledonia nephrite also occurs, and has been extensively used by the natives; whilst jadeite is reported to be found in New Guinea. The Oceanic jades, however, can hardly have found their way to Europe in prehistoric times, although Professor Fischer went so far as to argue in favour of such a view.

Reviewing the jade question in a general way it must be admitted that the known occurrences of nephrite and jadeite are as yet very limited. But within the last few years discoveries of the minerals have been occasionally made in Europe

¹ "Proc. U. S. Nat. Mus.," vol. xi, 1888, p. 124.

² "Gems and Precious Stones of North America." By George Frederick Kunz, New York, 1890, p. 278.

and in America, thus proving that the substances are not so limited geographically as formerly supposed. Moreover, our more intimate knowledge of the characters of the minerals shows that they are not of so exceptional a nature as the earlier authorities supposed, and geologists are entitled to predict the probability of their discovery, if searched for, among the metamorphic rocks of Europe.

On the whole, it may be said that although the last word has undoubtedly not yet been uttered on the jade question, the balance of evidence at present tends in my opinion towards the view that the jade is for the most part indigenous to the countries in which the implements occur, and that the controversy will therefore sooner or later be lifted entirely out of the domain of anthropology.

DISCUSSION.

Mr. WALHOUSE said that some years ago he noticed a letter in the "Times" in which the writer stated that, when visiting Iona, he bought some pretty green pebbles from children who were offering them for sale on the beach, and some time after he happened to show them to a learned Chinese gentleman, who pronounced them to be real jade. Mr. Walhouse went on to say that he, too, had visited Iona a year or two before the "Times" correspondent¹ and had also bought some of the green pebbles, two of which he produced. Mr. Rudler, however, pronounced them to be only serpentinous marble, or opicalcite, a mixture of serpentine and limestone.

Mr. MARTIN asked if jade was found in Burma or Afghanistan in quarries or in isolated blocks scattered through other kinds of rock.

The CHAIRMAN remarked that the facts stated by Mr. Rudler appeared to have cleared up what seemed the insoluble anthropological problem of some years ago, how a mineral only known to exist in the far East could have been transported in large quantities to the lakes of Switzerland; and showed that, as in many anthropological problems, the missing factor is our ignorance. There still remained, however, in connection with the subject, questions requiring investigation. Although jade quarries had been found in Europe and America, their connection with the localities in which jade implements have been discovered had yet to be demonstrated. The singular fact that nephrite implements alone occurred in one group of lake dwellings and jadeite implements alone in another also had to be explained. As Mr. Rudler had truly stated "the last word has not been said on this matter."

Mr. READ also took part in the discussion.

¹ The *Times* correspondent was Charles G. Leland, of "Gypsy Lore" celebrity. In his recently published volume on Gypsy Sorcery he repeats the Iona story, and again asserts the pebbles to be jade.—M.J.W.

ANNUAL GENERAL MEETING.

JANUARY 27TH, 1891.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The CHAIRMAN declared the ballot open, and appointed Mr. BOUVERIE PUSEY and Mr. MAURICE BEAUFORT scrutineers.

The Treasurer, Mr. A. L. LEWIS, read his report for the year 1890, as follows:—

TREASURER'S REPORT FOR 1890.

The total receipts from revenue as distinguished from investments during the year 1890 have been £562 7s. 6d., being £23 4s. 4d. less than in 1889; in 1889, however, three life compositions of £21 each were received, whereas this year only two have been received, and this practically accounts for the difference; there has indeed also been a falling off of £9 9s. in the yearly subscriptions, but it is very gratifying to find this all but balanced by an increase in the sale of publications.

In pursuance of the recommendation contained in the Report of the Council for 1889, and approved by the last Annual General Meeting, a number of books and periodicals which were found to be of no practical value in our library have been sold out of it, and have produced £65; and £100 of the £900 $3\frac{1}{2}$ per cent. Metropolitan Board of Works Stock held by the Institute have been sold and produced £111 4s. 6d.

The ordinary expenditure for the year has been £656 17s. 4d., being £94 9s. 10d. more than the receipts from revenue, but £21 15s. 9d. less than the corresponding expenditure for 1889; this reduction is mainly in printing and stationery, which, for reasons explained last year, cost more in 1889 than usual, but I regret to find that £9 less have been spent on the *Journal* in 1890 than in 1889; this, however, is in consequence of the quantity and nature of the matter required to be printed, and not of any shortsighted attempt to save money by starving the *Journal*.

In addition to the ordinary expenditure £20 out of the £65 received from the sale of books have been set aside for binding

our valuable collection of pamphlets and short papers, of which £8 16s. 11d. had been expended at the end of the year.

Although the difference between our income and our expenditure has for some years been on the wrong side, and can only be brought to the right side by a considerable accession of members, or by a revolutionary reduction of expenditure, the financial position of the Institute is by no means alarming. The liabilities at the end of 1890 (other than our moral liability to our life members) were :—

			£	s.	d.
Rent for one quarter. . . .	..	..	41	5	0
Two numbers of <i>Journal</i> , say . .	..	..	110	0	0
Small sundries, say . . . .	..	..	8	15	0
			<hr/>		
Total . . . . .	..		£160	0	0
			<hr/>		

while the assets were: £800 stock, worth say £880, and cash in hand and at Bank £78 13s., in addition to a small sum likely to be received for unpaid subscriptions, and the library and stock of publications, the value of which is considerable, but difficult to estimate.

A. L. LEWIS,
Treasurer.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND

Receipts and Payments for the Year ending 31st December, 1890.

RECEIPTS.				PAYMENTS.						
£	s.	d.	£	s.	d.	£	s.	d.		
BALANCES, January 1st, 1890:				RENT (including coal and gas), one year to Michaelmas, 1890				165	0	0
Cash in hand	3	11	0	PRINTING JOURNAL, Nos. 68, 69, 70, 71 (including illustrations and Authors' copies)				215	11	6
Petty Cash in hand.....	2	4	3	SALARIES AND COLLECTOR'S COMMISSION				169	5	7
SUBSCRIPTIONS:				STAMPS AND PARCELS				39	17	5
For year 1890	359	2	0	ADVERTISING				4	6	7
Life Compositions	42	0	0	PRINTING AND STATIONERY				20	4	2
Arrears	50	8	0	HOUSE EXPENSES:						
SALE OF PUBLICATIONS:				Cleaning rooms				17	9	0
Messrs. Trübner & Co.	77	2	8	Attendance and Refreshments at Meetings ..				21	0	0
Messrs. Longmans & Co.	0	10	2	INSURANCE AND MISCELLANEOUS EXPENSES ...						
Office Sales	4	4	6	BINDING.....				20	0	0
BOOKS, &c., SOLD FROM LIBRARY				Less in hand				11	3	1
METROPOLITAN BOARD OF WORKS 3½ PER CENT.				BALANCES:						
STOCK. £100 sold.....	81	17	4	Cash at Bank, 31st December				59	18	2
DIVIDENDS:	65	0	0	Cash in hand, 31st December				3	18	6
Half-year on £900, and half-year on £800	111	4	6	Petty Cash in hand				3	13	3
of above Stock	29	0	2	Cash in hand on Binding account				11	3	1
								78	13	0
								£744	7	3

A. L. LEWIS, *Treasurer.*

Examined and found correct,

(Signed) EDWARD W. BRABROOK, } *Auditors.*
ROBT. B. HOLT, }

The Secretary, Mr. F. W. RUDLER, read the following:—

REPORT OF THE COUNCIL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND FOR THE YEAR 1890.

During the past year eleven Ordinary Meetings have been held, in addition to the Annual General Meeting.

The following is a list of the various communications that have been submitted to the Institute during the year:—

1. Exhibition of some Skulls, dredged by G. F. Lawrence, Esq., from the Thames, in the neighbourhood of Kew. By Dr. Garson.
2. Characteristic Survivals of the Celts in Hampshire. By T. W. Shore, Esq., F.G.S.
3. Exhibition of Stanley's Spirometer. By J. G. Garson, Esq., M.D.
4. Some Borneo Traps. By S. B. J. Skertchly, Esq., F.G.S.
5. The Diëri and other kindred Tribes of Central Australia. By A. W. Howitt, Esq., F.G.S.
6. Exhibition of two Skulls from a Cave in Jamaica. By Professor Flower, C.B., F.R.S.
7. Manners, Customs, Superstitions and Religions of South African Tribes. By the Rev. James Macdonald.
8. Exhibition, by Isidore Spielmann, Esq., of a Skull, dredged up on the Manchester Ship Canal Works.
9. The old British "Pibcorn," or "Hornpipe," and its Affinities. By Henry Balfour, Esq., M.A.
10. The Ancient Peoples of Ireland and Scotland considered. By Hector MacLear, Esq.
11. Anthropometric Identification of Criminals. By M. Jacques Bertillon.
12. On a New Instrument for Measuring the Velocity of the Arm or other Limb. By Francis Galton, Esq., F.R.S., *Vice-President*.
13. On the Ethnographical Basis of Language, with special reference to the Customs and Language of Hunza. By Dr. G. W. Leitner.
14. On the Natives of the Interior of New Guinea, encountered on Sir William MacGregor's Expedition to Mount Owen Stanley. By A. P. Goodwin, Esq.
15. Exhibition of Two Crania from the Thames. By G. F. Lawrence, Esq.
16. Exhibition of a "Ula" or Fetish, from the neighbourhood of Lake Nyassa. By Professor Flower, C.B., F.R.S.
17. The Nomad Tribes of Asia Minor. By Theodore Bent, Esq., M.A.
18. Notes on some North American Indians. By the Rev. E. F. Wilson.
19. A contribution to a Scientific Phrenology. By Bernard Hollander, Esq.
20. Exhibition of a Skeleton found at West Thurrock, Essex; and of Two Skulls recently exhumed within the City limits. By John E. Price, Esq., F.S.A.
21. On the Study of Ethnology in India. By H. H. Risley, Esq., M.A.
22. The Yourouks of Asia Minor. By J. Theodore Bent, Esq., M.A.
23. Stone Circles in Wiltshire. By A. L. Lewis, Esq.
24. An Apparent Paradox in Mental Evolution. By the Hon. Lady Welby.
25. Exhibition of Patterns of Finger-marks. By Francis Galton, Esq., F.R.S.
26. Exhibition of an Ethnographical Album of the Pacific Islands. By Messrs. J. Edge Partington and Charles Heape.
27. On the Source of the Jade used for ancient Implements in Europe and America. By F. W. Rudler, Esq., F.G.S.

In the course of the year four numbers of the *Journal* have been issued: namely, Nos. 70, 71, 72 and 73. These contain 495 pages of letterpress, and are illustrated by 15 plates and woodcuts.

Twelve new members have been elected during the year, viz., one honorary, and eleven ordinary members; but on the other hand the Council regrets to announce that the Institute has lost seven members by death, and that eight members have resigned. One annual subscribing member has been transferred to the list of compounders.

The following are the names of those whose deaths have been reported since the last Annual Meeting:—

J. Backhouse,	elected 1881.
Sir Richard F. Burton,	„ 1863 (Founder A.S.).
F. W. Cosens	„ 1864 (Founder A.S.).
Dr. G. Harris	„ 1864 (Founder A.S.).
Dr. H. Muirhead	„ 1867.
Miss North	„ 1885.
W. Peppé	„ 1869.

It will be seen that five out of the seven had been members for more than twenty years, while three of them were amongst the Founders of the Anthropological Society of London.

Obituary notices of Sir R. F. Burton, Dr. George Harris, Dr. Henry Muirhead and Miss Marianne North will appear in the *Journal* of the Institute.¹

In the following table the present state of the Institute, with respect to the number of members, is compared with its condition at the corresponding period of last year:—

	Honorary.	Corresponding.	Compounders.	Ordinary.	Total.
January 1st, 1890	42	76	92	223	433
Since elected ..	1	..	2	11	14
Since deceased ..	..	..	..	7	7
Since retired or been struck off	..	..	..	8	8
January 1st, 1891	43	76	94	217	432

Dr. Beddoe's term of office having expired, the Council has nominated as his successor Dr. E. B. Tylor, who occupied the Presidential Chair, with much advantage to the Institute,

¹ These have been published in the February number, vol. xx, 1891, p. 295.

during the sessions 1879–80, and 1880–81. The Council desires to express its appreciation of the services of Dr. Beddoe during his Presidency, and is aware that these services have often been rendered at much personal sacrifice in consequence of his residence at a considerable distance from London.

Mr. Rudler having expressed a desire to retire from the Secretaryship, the Council has nominated Mr. Cuthbert Peek as his successor.

The Reports were adopted on the motion of Mr. GREATHEED, seconded by Mr. W. H. COFFIN.

The PRESIDENT then delivered the following Address:—

ANNIVERSARY ADDRESS

By DR. BEDDOE, *President*.

I HAD to apologise, in my annual Presidential Address last year, for the fewness of the occasions on which I had been able to fulfil the first duty of a President. But to-day such an apology seems still more necessary. The state of my health since last spring has prevented me from once taking the chair at our evening meetings; and I must now take a final farewell of you in the capacity of Chairman. If I had fore-known what has happened, I would have done so earlier, and made way for a better man; as it is, I have had to rely on the ever-ready kindness of Mr. Rudler, and of the Vice-Presidents.

The Institute requires the active aid of all its friends, if it is to maintain the position that should be occupied by the only purely Anthropological Society in the greatest empire of this and of all time. It needs not only the continued services of its old friends, though among them we may reckon the masters of several departments of our science, and some of the most assiduous and catholic of labourers in the anthropological field. It needs new men, too, who will not only follow out the old lines, but invade new territories, or rather cultivate those corners of our territory which have been partially neglected, for instance, psychology, if indeed that great domain may be spoken of as a corner.

In psychology, as I am reminded by one of our oldest members, a great field lies open at our very doors, at present little cultivated, and by our own Society scarcely at all. He recalls to me, moreover, the dictum on this subject of Sir William Turner, one of the ablest and most valuable of our contributors.

“The physical aspect of the question, although of vast importance and interest, yet by no means covers the whole ground of man’s nature, for in him we recognize the presence of an element beyond and above his animal framework.”

Sir William is himself eminently, I might perhaps say exclusively, a physical anthropologist; and as one who has also worked entirely in that department, I feel all the more need of our encouraging the workers in this remote and difficult, but most important domain, to come among us and help us.

I grant that the leading anthropological societies on the continent, like our own, confine themselves too much to the material side, to the study of the physical characteristics of ancient and modern man, and to that of the archæological material which is always turning up in more and more abundance. We have, however, some claim to have been their fore-runners and leaders in these lines, and it should be our ambition not merely to keep abreast of our foreign friends, but to be their leaders “into fresh fields and pastures new.”

In looking at their actual position, we naturally turn first to France, which the genius of the great Broca placed a generation ago in the first rank. She had even then several other anthropologists of light and leading; the now venerable Quatrefages, for example, was already conspicuous; but Broca was a man who positively radiated science and the love of science; no one could associate with him without catching a portion of the sacred flame. Topinard has been the Elisha of this Elijah; and in some of his pupils we recognize a third generation of strenuous workers in our field. The friendly relations which he has always cultivated with our British anthropologists, particularly with Professor Flower and Dr.

Garson, led, as some of you are aware, to a very profitable international agreement in the matter of craniometrical nomenclature. We must all regret that owing to the, to us, inexplicable action of the French authorities, Topinard's public usefulness as a Professor has been diminished, but in the new journal, "*L'Anthropologie*," in conjunction with Cartailhac and Hamy, one finds plenty of evidence of his continued activity.¹ Many recent papers in "*L'Anthropologie*" are of interest and importance; for example, a series by MM. Deniker and Laloy, on the Exotic Races at the Exposition of 1889, well illustrated by photographs. Among the races described from living specimens are the Adouma, who dwell on the banks of the Ogowé River immediately to the south of the equator, between the Okanda and the Batoké. These people are small though not dwarfish; of eight Adouma, the tallest was shorter than the shortest of eight Okanda, the mean of the Adouma being 1.59 metre, or about 5 feet 3 inches, and that of the Okanda 1.70 metre, over 5 feet 9 inches. Moreover, while the Okanda are dolicho or mesocephalic, the Adouma are mostly brachycephalic; they are also somewhat lighter in colour and a little less prognathous, and have somewhat more of the pepper-grain or Hottentot-like disposition of the hair on the head. All these points may with some probability be taken to indicate that their tribe is a product of the mixture of negro blood with that of the Akkas or Ashongo the dwarfish and shorthheaded race of whom we have heard so much lately, the pigmies of Herodotus. The only thing wanting, apparently, is the downy covering of the skin.

M. Bertholon describes two probably Phœnician skulls found in Tunisia, and agreeing in form with those which have hitherto been ascribed to this race. They are of good size, mesocephalic (77.80), with the forehead narrow, the anterior temporal region flat, the frontal bosses replaced by a single

¹ Quite recently the Académie des Sciences (Institute of France) has marked its sense of the great value of his investigations into the distribution of the colours of the eyes and hair in France, by adjudging to him the Montyon Statistical Prize.

median prominence, a certain degree of parieto-occipital flattening, and parietal bosses well-marked, but placed so far forward as to be immediately above the auricular meatus, so that the vertical aspect is a kind of lozenge. These characters are fairly distinctive, and resemble those of Sir R. Burton's crania from Palmyra, described by Carter Blake, and those of Mantegazza and Zanetti from Sardinia.

Bertholon affirms, on the strength of nearly 3,000 measurements of modern Tunisian skulls and heads, that this type no longer exists in the country. It is difficult to imagine that the Carthaginian blood, once dominant there, can have so utterly disappeared.

An ethnological paper of a rare kind, and which one welcomes accordingly, is a detailed account of the inhabitants of Kerassund in Anatolia, by Aristotle Neophytos. A good description *from within* of a semi-civilised people is a rare thing.¹

There are many men of light and leading among contemporary French anthropologists, such as the Baron de Baye, who fills there the place of General Pitt-Rivers among us, such as De Mortillet, De Nadaillac, Lagneau, Bertillon, Collignon, every one standing at the head of his own department. But in Germany, though we do not forget Schaafhausen and Ranke, and Von Hölder, Virchow seems to tower above everybody else much as Broca did in France in his own day; like him he is the founder of a school, the kindling torch of anthropology in his country, which is fortunate beyond France, inasmuch as it still retains him, in seemingly unabated power and activity, in this his 70th year, while Broca was lost to his country and to science while yet in middle life.

It is more especially physical anthropology which flourishes under his rule, but also prehistoric and proto-historic archæology.

¹ The School of Lyon sends us an elaborate memoir, by Dr. Testut, on the Quaternary Skeleton of Chancelade in the Dordogne. The author concludes that the man of Chancelade, small of stature, strong and coarse of limb, with a long, high, and finely-developed skull, bore a considerable resemblance to the modern Esquimaux, confirming hereby the conjecture put forth by our own Boyd Dawkins, ere yet quaternary man was certainly known except by his works.

There is a wide field in these latter departments, on which the Germans entered much later than we; but having entered it, they are prosecuting it, as well as physical anthropology, with characteristic industry and tenacity. Thus the early relations of the Germanic and Slavic races are being gradually worked out. But the most remarkable papers which have come in my way from Germany are craniometrical. Von Erckert continues to publish his measurements and descriptions of Caucasian heads and features. The Chetchenzes come out strongly brachycephalic, as a rule, and almost all of them have thick black hair. The true Circassians, the Adighé and Kabardians, have longer heads: the average breadth index in 22 is 81·8, which, if we allow 2·0 for the fact of the measurements being taken on the living head, places them just below the limits of brachycephaly. This I should have expected, but it somewhat surprises me to find that their hair, when mentioned, is invariably described as black; for I saw, in the Crimean days, a fair minority of more or less blond Circassians in Constantinople. I believe Virchow disproved the old belief that the Ossetes were blond Aryans. Von Erckert says their hair is almost always black. Their living breadth index is 80, which makes them mesocephalic. So too are the Mingrelians and Guriels apparently, though of them Von Erckert has not observed many. He notes, however, that many Mingrelians and Imeretians are blond. Now I had it, years ago, on the authority of Sir Henry Rawlinson, that curly yellow hair was not uncommon in Mingrelia. Sir Henry, who had little belief in the permanence in colour, thought it possible that the Egyptian colony, which Herodotus said had been planted in Mingrelia, might have perpetuated their curly hair but changed its colour, or that light red hues might have come out by crossing with their neighbours, as is said to be the case with mulattos in the southern states of America. Von Erckert notes the thick prominent lips of several of his Mingrelians, but does not mention curly hair.

Of 21 Armenians, 20 are more or less brachycephalic; indeed

their average index (living) rises to 85·7. They are orthocephalic, having loftier heads than any of the other Caucasian races. I shall refer to this point again presently.

The Jews of the Caucasus (Berg-juden as Von Erckert calls them) yielded him, on an average of 10, a breadth index of 86·7, so that in the skull they must have approached the limit of hyperbrachycephaly very closely, more closely than any other tribe investigated by Von Erckert. Polish Jews, according to Majer and Kopernicki, average (living) an index of 83·5, but this is less than that of the Poles and Ruthenians among whom they dwell. These so-called Mountain Jews may of course be largely the descendants of proselytes, but obviously that theory would not fully account for this extreme brachycephaly. Moreover, Von Erckert, while he finds a Jewish caste of physiognomy frequent among the other tribes, notes it almost universally among these Jews. The type of other Semites, Bedaween and Phœnicians, so far as we know, is dolicho or mesocephalic. There is a mystery here for solution.

Another interesting craniometrical paper in the Archiv is that of Dr. Von Luschan on the modern descendants of the Ancient Lycians. He shows that the people of the Greek nationality in Lycia, as well as in the neighbouring islands, are a mixed race of at least two heterogeneous elements, one long and one short-headed, while the Takhtaji or foresters, and the Bektash, whom he believes to represent the ancient Lycians, have but one type, which is short-headed. He shows that of 179 living Asiatic and Asio-insular Greeks, 79 were dolicho (under 77), only 16 mesocephal, and 83 brachycephal, there being two maxima in the curve, one at 75, and one at 88, or in the skull say 73 and 86. On the other hand, 13 Takhtajis yielded him indices of 81·7 to 91, or 40 Bektash of 84 to 89, with averages of 85·7 and 86·9, and with great elevation. With three exceptions, the whole 53 had dark eyes and black hair. He finds the same form of skull among the Armenians, and you will recollect that Von Erckert's observations on the Armenians agree with Von

Luschan's, so far as regards the brachycephaly and the great height.¹

Some of the long "Greek" skulls, on the other hand, he considers to be Semitic in form, resembling those of some Bedaween. The inference is that the Solymi and other ancient inhabitants of the S.W. coastlands of Asia Minor were really of Semitic origin, as has been supposed on other grounds. Von Luschan finds a similar type of skull common at Adalia, where also the facial aspect and the female hair-dress are distinctly Semitic.

There may be, doubtless there are, other elements in this so-styled Greek population; the old Hellenic invaders may have contributed an element to both divisions, but Von Luschan's argument for the presence of one race-type akin to the Armenian, and another akin to the Arabian, appears *prima facie* very strong.

A copy of Dr. Henne am Rhyn's work on the "History of Civilization among the Germans," came recently under my notice. It contains much matter of anthropological interest. Among the illustrations is a design from the Evangelium of the Emperor Otto III, containing four female figures intended to represent Roma, Gallia, Germania, and Sclavinia. Of these Roma has fair skin and dark hair, Gallia has both skin and hair dark, Germania a fair skin and very light hair, Sclavinia a dark skin and darkish hair.

The modern Selaves, though their features as well as their language suggest the presence of a common element in all their widely dispersed divisions, vary considerably in respect of colour. But the account given by Procopius indicates that those known to him, though a rather light-haired race, were distinctly not so fair as the Germans. If the Chechs of Bohemia supplied material for the ideal portrait just mentioned (and it is

¹ Mr. Bent's papers should be read in connexion with this subject. There is a tribe of nomadic wood-cutters in the Troad, shortheaded, with Turanian features; but they are called Turcomans by the settled population, while the pastoral nomads are called Yoruks.

likely enough that they did, from their westerly position and close contact with the Franconians), one may recognize the accuracy of the draughtsman, for the Chechs were and are a dark race as compared with the people of middle Germany.

But if we allow that the portrait of Gallia is equally correct, it follows that nearly a thousand years ago the descendants of the Gauls were, in German eyes at least, already a dark race. I observe that Professor Huxley, in his recent article on the great Aryan question, emphasises his belief that the old Gallic conquerors of Italy and Galatia were mostly if not wholly a xanthous race. Of course there is much to be said for this opinion; but the evidence of Ammionus Marcellinus for the xanthosity of the Gauls in the fourth century is quite as good as any we have relating to earlier periods. Yet in the tenth century we find the evidence just mentioned that a change had taken place in the recognized national type, and that in the direction of darkening, notwithstanding a considerable influx in the meantime of the blond element, in the form of Franks, Visigoths and Burgundians. Had there been a real change of type as Professor Huxley seems to think? Or was it merely that the same phenomena wore a different aspect when regarded by a dark southern and a blond northern people? Or was it that the successive strata of blond conquerors from the north were continually eroded by the influence of processes of selection, until the original substratum of dark Ibero-Kelts was laid bare?¹

An architectural paper by Henziker of Aarau in Switzerland, in the transactions of the Berlin Society, seems to me deserving of notice. The subject is the Rhæto-Romanish House. Henziker maintains that the people of southern Switzerland built in stone, till the Alemanni, coming in from the north, brought in the fashion of log-huts. A very striking point is

¹ Or was it the Romans took no account of the mass of dark undersized plebeians, and that their descriptions referred only to the military aristocracy? Durand, writing of the people of the Rouerge (Aveyron), takes the last view, and affirms that the same distinction still exists.

that Henziker found, in the Blegno valley in Ticino, certain peculiarities in the pattern of the house which he ascribes to Teutonic influence. But the Alemanni never occupied that valley, whereas the Lombards almost certainly did, and the writer points out that the Blegno valley contains a remarkably large proportion of blond blue-eyed persons. I made the same observation myself some years ago, and noted the very English aspect of the children. The Lombards, we know, were of our nearest kin; and many Saxons accompanied them in their invasion of Italy. The guarding of the northern frontier might account for their settling thickly in this Alpine valley, and natural selection might aid the preservation of their type here rather than in the hot plains of Lombardy.

Zuckerkindl's paper on the physical characters of the populations of Austria, read at the Vienna Congress, contains some remarkable, if not quite unexpected, facts respecting the predominance of brachycephaly in the Germans of Styria and Carinthia, as well as in the Slovenes of Carniola, where, however, it attains higher proportions. Taking Styria and Carinthia together, Zuckerkindl found about 5 per cent. of dolichocephals, 24 per cent. mesocephals, 50 brachycephals, and 23 hyperbrachycephals. Yet the only five prehistoric skulls that have been found in these provinces are dolichocephal, and so are 42 per cent. of ancient skulls from Carinthia. This great metamorphosis is also common, as we were previously aware, to Bavaria, Swabia, Austria, and Bohemia; nor has it yet been thoroughly explained.

Our Russian brethren make considerable use of the immense mass of anthropological material which their enormous dominion offers to them. Bogdanoff, Anuchin, Smirnoff, De Gondatti, Kharousin, Tarenetsky, and others are active and fruitful labourers. The recent Anthropological Congress at Moscow lasted fifteen days, and was admirably presided over, says M. Cartailhac, who was present, by a lady, the Countess Oubaroff.

Dr. Pauline Tarnofsky, a Russian lady, has produced a very

remarkable work, most favourably reviewed in "*L'Anthropologie*." She compares the cerebral development in four classes of women, harlots, thieves, peasants, and educated women, all drawn from Great Russia. The result is that in size of brain, and more especially in frontal development, the four form a regular progression, the thieves standing above the harlots, the peasants coming next, and the educated, as might have been expected, at the top. It is to be noted that the educated are the most dolichocephalic, contrary to what Schaafhausen's theory would require.

Except the fine work of MM. Siret and Victor Jacques, who are not Spaniards but, I believe, Belgians, we have had little from Spain for a long time. But the delay is to a great extent made up for by the admirable piece of work which has been now brought out by Dr. Telesforo de Aranzadi-y-Unamuno.

The Biscayans are said to be an obstinate people. The right side of obstinacy is perseverance, and Dr. Aranzadi is the most persevering of men. He has produced a monograph on his countrymen the Basques, small indeed in bulk, but more complete and thorough than any similar publication with which I am acquainted. It does not lend itself well to so brief a review as I could just now give to it. All the leading physical characteristics have been fairly worked out; stature, colour, head-form, facial features, &c. The average cephalic index (living) is 79, not far from that given by Broca. There is a good deal of variety in colour and stature, but the average of stature in conscripts seems to be about 163 centimeters (5 feet 4 inches). Aranzadi thinks there is in his countrymen a Finnish as well as an Iberian or Berber element, with a later Kimric or Gothic cross. His work is richly illustrated with maps, tables, and portraits, and has been published, as it deserved to be, at the expense of the province of Guipuzcoa.

With these brief notes and summaries I quit our foreign brethren and their labours. As for our own, the report of the Council has, I think, summarised them. We have had some excellent papers, and I believe we might have had more had

we had the means to publish them in full, and with sufficient illustrations. We have no support, and but very little encouragement, from Government; though it must be allowed that the Indian authorities have helped us somewhat, in favouring the collection by Mr. Risley of his anthropometrical statistics. The field open to us is wider and more varied than that of any other nation; even if, with Deniker, we reckon so many as 13 varieties of man, the British Empire includes portions of no less than 14 of these. Even within our own islands there is plenty of material unwrought. The Archæological department, though the oldest and the most generally attractive, and, therefore, the most diligently laboured, has yet many secrets to yield up; witness the late discoveries at Rushmore, and at Silchester. In Scotland, Mitchell and Munro, and Joseph Anderson, and David Christison are proceeding with national caution, and building up masses of knowledge in detail; but they hesitate to generalise much as yet. There are few islands in all our wide empire of more varied interest than the Isle of Man, placed as it is between the three (or should we say four) great divisions of the British Isles, partaking of the character of all of them, yet having its own distinct peculiarities even in outward aspect. Mr. Arthur Moore's recent book on the surnames and place-names of the Isle of Man, deals admirably with its subject.

As for Ireland, that distressful country yields us nothing at all. Its ancient history is only too abundant and too eloquently told, but it passes our wit to interpret it. There is plenty of gold in the soil, much of it of beautiful workmanship; but I am told that it is usually found, not by direct and purposed exploration, but in trenching deep for potatoes. Let us hope the day may come when the gold of science may be unearthed for us in Ireland; it will probably be equally brilliant and unexpected.

I now quit this chair without further apologies. I accepted it in obedience to your wishes, and have done my best in it, though that best has been so poor. In my successor you have

one whom I need not praise; you know the man, and his ability and great achievements.

My period has been one of scientific congresses, held mostly in Paris; but this year will see two in London, both of great interest to us; the Congress of Hygiene and Demography, and the International Congress of Orientalists, of which our friend Dr. Leitner is an Honorary Secretary, and which promises to be of unusual fulness and importance. Several of our officials have already joined it, and I venture to express a hope that under my successor the Institute may join as a body, as the Paris Society has already done.

It was moved by Professor FLOWER, seconded by Dr. TYLOR, and unanimously resolved—

“That the thanks of the meeting be given to the President for his Address, and that it be printed in the *Journal* of the Institute.”

The SCRUTINEERS gave in their Report, and the following gentlemen were declared to be duly elected to serve as Officers and Council for the year 1891:—

President.—E. B. Tylor, Esq., D.C.L., F.R.S.

Vice-Presidents.—E. W. Brabrook, Esq., F.S.A.; Hyde Clarke, Esq.; F. W. Rudler, Esq., F.G.S.

Secretary.—Cuthbert Peek, Esq., M.A., F.S.A.

Treasurer.—A. L. Lewis, Esq., F.C.A.

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A vote of thanks to the retiring President, the retiring Vice-President, the retiring Secretary, the retiring Councillors, the Treasurer, and the Scrutineers, was moved by Mr. BRABROOK, seconded by Mr. COLLINGWOOD, and carried by acclamation.

ANTHROPOLOGICAL MISCELLANEA AND NEW BOOKS.

The PATTERNS in THUMB and FINGER MARKS: on their arrangement into naturally distinct Classes, the Permanence of the Papillary Ridges that make them, and the Resemblance of their Classes to ordinary Genera. By FRANCIS GALTON, F.R.S.

(From the "Proceedings of the Royal Society," Vol. xlviii, p. 455.)

(*Abstract.*)

THE memoir describes the result of a recent inquiry into the patterns formed by the papillary ridges upon the bulbs of the thumbs and fingers of different persons. The points especially dwelt upon in it are the natural classification of the patterns, their permanence throughout life, and the apt confirmation they afford of the opinion that the genera of plants and animals may be isolated from one another otherwise than through the influence of natural selection.

The origin of the patterns was shown to be due to the existence of the nail, which interfered with the horizontal course of the papillary ridges, and caused those near the tip to run in arches, leaving an interspace between them and the horizontal ridges below. This interspace was filled with various scrolls which formed the patterns. The points or point at which the ridges diverged to enclose the interspace were cardinal points in the classification. It was shown that there were in all only nine possible ways in which the main features of the inclosure of the interspace could be effected. In addition to the nine classes there was a primary form, occurring in about 3 per cent. of all the cases, in which the interspace was not clearly marked, and from this primary form all the other patterns were evolved. The forms of the patterns were easily traced in individual cases by following the two pairs of divergent ridges, or the one pair if there was only one pair, to their terminations, pursuing the innermost branch whenever the ridge bifurcated, and continuing on an adjacent ridge whenever the one that was being followed happened to come to an end. Twenty-five of the principal patterns were submitted, and a few varieties of some of them, making a total of 40. They are by no means equally frequent.

The data as to the permanence of the patterns and of the ridges that compose them were supplied to the author by Sir W. J.

Herschel, who, when in the Indian Civil Service, introduced in his district the practice of impressing finger marks as a check against personation. Impressions made by one or two fingers of four adults about thirty years ago, and of a boy nine years ago, are compared with their present impressions. There are eight pairs of impressions altogether, and it is shown that out of a total of 296 definite points of comparison which they afford, namely, the places where ridges cease, not one failed to exist in both impressions of the same set. In making this comparison, no regard was paid to the manner in which the several ridges appear to come to an end, whether abruptly or by junction with another ridge. The reason was partly, because the neck where junction takes place is often low and may fail to leave a mark in one of the impressions.

Lastly, the various patterns were shown to be central typical forms from which individual varieties departed to various degrees with a diminishing frequency in each more distant degree, whose rate was in fair accordance with the theoretical law of frequency of error. Consequently, wide departures were extremely rare, and the several patterns corresponded to the centres of isolated groups, whose isolation was not absolutely complete, nor was it due to any rounding off by defined boundaries, but to the great rarity of transitional cases. This condition was brought about by internal causes only, without the least help from natural selection, whether sexual or other. The distribution of individual varieties of the same patterns about their respective typical centres was precisely analogous in its form, say, to that of the Shrimps about theirs, as described in a recent memoir by Mr. Weldon (*"Roy. Soc. Proc.,"* No. 291, p. 445). It was argued from this, that natural selection has no monopoly of influence either in creating genera or in maintaining their purity.

"MODERN CUSTOMS AND ANCIENT LAWS OF RUSSIA; being the Ilchester Lectures for 1889-90." By Maxime Kovalevsky. (David Nutt.) 7s. 6d. The volume contains six essays, the outline of lectures delivered at the Taylorian Institution, Oxford. The lecturer states that his chief purpose was to show how far the ancient laws of Russia have been preserved by the still-living customs of the country people, and to what extent the modern political aspirations of the nation are rooted in its historical past. The titles of the lectures are as follows:—(i) "The matrimonial customs and usages of the Russian people, and the light they throw on the evolution of marriage." (ii) "The state of the modern Russian family, and particularly that of the joint or household community of Great Russia." (iii) "The past and present of the Russian village community." (iv) "Old Russian folknotes." (v) "Old Russian parliaments." (vi) "The origin, growth, and abolition of personal servitude in Russia." The work is well indexed.

"PRIMITIVE FOLK. Studies in Comparative Ethnology." By Elie Reclus. (W. Scott.) 3s. 6d. The Contemporary Science Series. This work (as its title implies) passes in review the more primitive races of mankind, describing in turn, the Eastern Inuits, the Western Inuits, the Apaches, Nairs, Mountaineers of the Neilgherries, Todas, Badagas, Cotas, Irulas, Curumbas, Kolarians, &c.; also human sacrifices among the Khonds. The author states in the preface, "These studies are drawn, for the most part, from the information given by travellers and missionaries during the first half of the century, about countries and tribes of which the social condition has since been deeply modified." The work is well indexed.

"RACES AND PEOPLES: Lectures on the Science of Ethnography." By Daniel G. Brinton, A.M., M.D., Professor of Ethnology at the Academy of Natural Sciences, Philadelphia. 8vo. 1890. 9s. The volume consists of a reprint of the lectures delivered at the Academy of Natural Sciences, Philadelphia, 1890. The titles of the lectures are:—(i) "The physical elements of ethnography." (ii) "The psychical elements of ethnography (*a*. The associative elements; *b*. The dispersive elements)." (iii) "The beginnings and sub-divisions of races." (iv) "The Eurafrian race; South Mediterranean branch (*a*. The Hamitic stock; *b*. The Semitic stock)." (v) "The Eurafrian race; North Mediterranean branch (*a*. The Euskaric stock; *b*. The Aryac stock; *c*. The Caucasian stock)." (vi) "The Austafrian race (*a*. The Negrillos; *b*. The Negroes; *c*. The Negroids)." (vii) "The Asian race (*a*. The Sinitic branch; *b*. The Sibiric branch)." (viii) "Insular and Littoral peoples (*a*. The Negritic stock; *b*. The Malayic stock; *c*. The Australic stock)." (ix) "The American race." (x) "Problems and Predictions." The volume contains illustrations and ethnic charts.

"THE VIKINGS OF WESTERN CHRISTENDOM." By C. F. Keary, M.A., F.S.A. With map and tables. (T. Fisher Unwin.) 16s. The period dealt with in this work extends from A.D. 789, the attack on the Dorset coast, to A.D. 888, the defeat of the Vikings by Odo, at Montfaucon. The principal sections into which the book is divided are Heathendom; the creed of Heathen Germany; Christendom, and the changes in Christianity at the time of the influx of the barbarians. The first contests. The character of the Vikings. The Vikings in Ireland. The conquests of Christianity. Civil war, and the forces tending to the disintegration of the Empire. Peace of Verdun. Raids on the Frankish Empire, A.D. 834–845. Defences broken down, A.D. 846–858. Decay and reintegration, A.D. 859–866. The Great Army. Pause in the Viking raids. Charles the Fat. The invasion of Germany. The Siege of Paris, A.D. 885; with a general review of the creed of Christendom during the period. Genealogical and chronological tables are given, and the volume is well indexed.

PEOPLE OF THE GOLD COAST.

THE FOLLOWING IS EXTRACTED from "Reports on Her Majesty's Colonial Possessions, No. 110, Gold Coast." The population is estimated at 1,406,450, giving an average of 41·4 to the square mile. The greater number of these are scattered through the interior of the country in small villages situated in clearings of the forest. There are few towns, the seats of the principal chiefs, which may contain 1,000 to 2,000 inhabitants each, but, as a rule, the number is under 100. Each village is surrounded by a thick growth of plantains, which affords the principal food for the people, and in the neighbourhood are the small clearings where they grow their corn (maize), yams, and other vegetables. As a rule, each family grows its own food in a separate patch, these patches seldom exceeding an acre in extent, but when a whole village combines, an area of from ten to twelve acres is cleared and planted with maize, which appears to be the only crop grown in co-operation, and even in such cases the portion of each is carefully marked out. Most of the land is held by families in common, the quantity in private hands being comparatively small. Each member of the family has the right to select a portion of the common land for cultivation, but cannot acquire exclusive possession thereof, and alienation can only be effected by the unanimous consent of the family. If, however, any member plants trees, he has an exclusive right to the fruit thereof, but cannot transmit that right to his descendants. The powers of the head of the family vary with his personal influence and character, but to him belongs the right of allowing strangers to cultivate, receiving the fees therefor (usually consisting of a flask of rum, a head of tobacco, and a shilling in money), and of permitting the cutting of palm trees for wine.

When granting permission to cultivate, the privilege of cutting oil palms is always reserved, but the temporary tenant does not appear to be restrained from gathering for his own use such nuts as may ripen during his occupation.

The boundaries between estates are marked by natural objects, such as rocks, trees, rivers, &c.; but as the memory of "the oldest inhabitant" is the only test, boundary disputes are frequent.

The leasing of land for a term of years is unknown. A man having no land of his own, goes to a neighbouring landowner, and, on paying the small fee mentioned above, obtains leave to cultivate; but when he takes off his crop, he vacates the land. Estates, however, are frequently pawned or mortgaged for money lent, the pawnee or mortgagee acquiring thereby the right to use the land as his own (except that he may not cut the oil palms) until the loan is repaid, the use of the land standing in lieu of interest. In this manner estates are frequently transferred and pass from heir to heir of the mortgagee, the mortgagor or his representatives, retaining the right to redeem the property by repayment of the loan at any time.

Under similar conditions similar phenomena will always recur, and in the Gold Coast Colony as in all poor agricultural communities the money lender is the tyrant of his neighbourhood. As far as his personal wants are concerned, the natives of the interior of the colony can live without money. He owns a few plantain trees in the village patch which supply him with the material of his staple food, *fufül*, his corn and vegetable patch not only give him enough for his own use, but a surplus to be bartered for fish and other necessities or sold for money to buy cloth, tobacco, &c., the marketing being done by his wives, and he lives free from care. But if a death occurs in his family, if he should be so unfortunate as to lose a wife, a child, his father, or, most important of all, an uncle, all is changed. "Custom" must be made regardless of expense. Guns must be fired, rum must be provided, and every comer must be entertained for at least a week after the death.

The "Custom" must be repeated after an interval of six weeks, and a third time after the lapse of a year. Sacrifices of goats and sheep must be made at the funeral, and at other times as directed by the "fetishman," and perhaps fetish made to lay the ghost of the deceased. For this outlay, the labour of himself, and wives, and family no longer suffices; he goes to the "Broompon," the rich man of the neighbourhood, and obtains a loan. Henceforth, till the money is repaid, he is a slave. Interest at 50, 75, or 100 per cent. is added to the principal, and until the loan is repaid, the debtor must work for his creditor two days in each week, nothing being allowed for his labour. This may, and frequently does, go on for years, until the debtor is fortunate enough to find means to pay both principal and interest. A man may be held for the debts of his deceased relatives as well as his own. The man who makes the "Custom," is responsible for the debts of the deceased, and in the courts of the chiefs, judgment will be given against him and his person held until payment or an arrangement is effected.

"Customs" are probably responsible for seven-eighths of the debts in the country, and weigh like an incubus on its prosperity by causing a vast amount of useless expenditure and implanting in the people a love of drink and idleness. The observance is enforced by superstition and submitted to from fear; fear of the anger of the dead, fear of the wrath of the fetish, and fear of public opinion, which applauds the man who makes a "big custom," and stigmatizes as "stingy" the man who spares on such an occasion with all the power which a small community can bring to bear on every member of it.

A CURIOUS CUSTOM IN SICILY.

"FOREIGN OFFICE REPORT, No. 813—Italy." 1891, p. 32. Mr. Rainford reported a characteristic example of the pilgrimages made in Sicily; that to the shrine of the "Madonna della Catena," near Messina, he describes thus:—At a mountain town called Mongiuffi Melia, a village distant some 50 miles from Messina, there is a "festa" in September called the Madonna of the Chain (Madonna

della Catena). If a man is dangerously ill, or in trouble, or in love or for whatever reason it may be, he vows to go for one, two, or three, or four years to the pilgrimage of the "Madonna della Catena." This pilgrimage is a remnant of the Middle Ages. The men who have vowed strip themselves of all but a cloth about their loins. They have in their hands soft pieces of pithy wood called "sferza" about the diameter of a penny piece, through which are stuck from forty to fifty pins, their points projecting one-eighth of an inch. The procession starts from Mongiuffi Melia to the chapel of the "Madonna della Catena," about four miles distant; the men stab themselves with these pins in the shoulders, breast, thighs, and legs, shouting all the time; the women encourage them with wine and bread; and a priest leads the way with a banner. When I saw this, there were over a hundred men in the procession, and the stabs over and over again on the same spots caused horrible bleeding tumours; two deaths during the time I have known of this "festa" have occurred. The women who have made vows pass their tongues upon the ground through every impurity from the church door to the high altar. The men, I believe, never break a vow when made under the sense of religion.

"THE AMERICAN RACE." A linguistic classification and ethnographic description of the native tribes of North and South America. By Daniel D. Brinton, M.D., New York. (Hodges and Co.) 1891. The author in his preface states: "So far as I know, this is the first attempt at a systematic classification of the whole American race on the basis of language. I do not overlook Dr. Latham's meritorious effort nearly forty years ago; but the deficiency of material at that time obliged him to depart from the linguistic scheme and accept other guides." The contents of the volume are as follows:—Racial history and characteristics. *North American Tribes*—(1) The North Atlantic Group; (2) The North Pacific Group; (3) The central group; *South American Tribes*—(1) The South Pacific Group; The Columbian and Peruvian Regions; (2) The South Atlantic Group, the Amazonian and Pampean regions; linguistic appendix, vocabularies, and index of authors.

"THE DARWINIAN THEORY OF THE ORIGIN OF SPECIES." By Francis P. Pascoe, F.L.S., Ex-president of the Entomological Society. (Gurney and Jackson.) 1890. "Natural selection is assumed to depend on a power in every organism—past and present—intently watching every variation, rigidly destroying any in the least degree injurious, and picking out, with unerring skill, all that in the future, by gradual accumulations, give a better chance in the struggle for life. It is necessary to keep this power always in mind whenever we talk of natural selection, if we would fully understand the objections to the theory urged in these pages."

"EXPLORATORY SURVEY OF PART OF THE LEWES, TAT-ON-DUC, PORCUPINE, BELL, TROUT, PEEL, AND MACKENZIE RIVERS." By William

Ogilvie. 1887-8. Ottawa, 1890. The survey covers a large portion of the North-West Territories of Canada, and incidental mention is made of the Indians. The Indian population in the Mackenzie Basin proper, Rampart House, on the Porcupine, and La Pierre's House, on Bell River is given as 3,961 in 1881; the native population in the country round Peace river and the lakes being stated by Father Grouard to amount to 1,700.

"THREE YEARS IN WESTERN CHINA." By Alexander Hosie, M.A., H.B.M. Consular Service, China. (George Philip.) 8vo. The volume describes Western China as seen by the author in 1882-4. A portion has already appeared in the Proceedings of various Societies, much new matter being added. The country explored is between 25 and 30 degrees north latitude, and 100 and 108 degrees east longitude. A description of the Lolos, with vocabulary of numerals, is given, together with important information as to the trade and products of the district. The volume closes with exercises on the Phö language, spoken by the aborigines of Kuei-chow (approximate) latitude 27 degrees north longitude 107 degrees west.

AMERICAN MOUNDS. "NATURE," January 1st, 1891, reprints from the "American Naturalist" a paper on the "Ancient mounds at Floyd, Iowa." By C. L. Webster. In one of the mounds five human bodies were found, of which details are given. The paper concludes by stating that other mounds will be explored as occasion offers.

USE AND DISUSE. January 8th contains a review, by Mr. G. J. Romanes, of "Are the effects of use and disuse inherited?" An examination of the view held by Spencer and Darwin. By William P. Ball. Mr. Romanes sums up by stating, "In conclusion, we must add that Mr. Ball's analysis, as a whole, appears to us to stagger the theory of use inheritance more seriously than ever it has been staggered before; and therefore that no one who henceforth writes upon the subject can afford to disregard his treatment of the question, 'Are the effects of use and disuse inherited?'"

Vol. iii of the "Internationales Archiv für Ethnographie," contains a paper on Maya antiquities, on stone adzes from Surinam, the ethnography of Borneo, &c. The illustrations are stated to be remarkably good.

January 22nd contains an important paper by Prof. Haddon, commenting on the fact that our Indian dependencies form a vast field for ethnological enquiry, which has not as yet been sufficiently cultivated. Prof. Haddon advocates the establishment of a Bureau of Ethnology, which would stimulate original research. The paper contains illustrations of a silversmith, a Tamil woman, and some ornaments.

February 5th contains a note, by Mr. Worthington Smith, on the skeleton of a Brachycephalic Celt, found while excavating in Albion Road, Dunstable.

"THE AMERICAN ANTHROPOLOGIST," Vol. iii, No. 4, contains, with other notes, the address of the Vice-President (Frank Baker), before the section of anthropology, American Association for the Advancement of Science, at the Indianapolis Meeting, August 20th, 1890, the subject being "The Ascent of Man." The scope of the address is thus stated at the commencement:—"Within comparatively recent times still another avenue of information has been found, for we have learned that it is not alone by external records that man's history can be traced, but that important facts may be obtained by studying the constitution of his body; that the changes and vicissitudes of his existence are recorded on his very bones, in characters long undeciphered, but to which the clue has at last been found. My labours have led me more particularly to this department of anthropology, and a concise summary of the main heads of this research may be of value and interest."

"Gens and Sub-Gens," as expressed in four Siouan languages.

"Excavations in an ancient soapstone quarry in the district of Columbia." By William H. Holmes (with plate illustrating tools found).

"Writing materials and books among the Ancient Romans." By A. P. Montague. The subject is divided into the following heads, and each is carefully considered:—

1. The materials used as paper.
2. The ink.
3. The pen or pencil.
4. Books.

"Indian origin of Maple Sugar," by H. W. Henshaw, contains an account of the Indian method of manufacture, with some remarks on the etymology of its Indian name.

Secret Societies among the Coast Indians of British Columbia and Alaska are stated to be described by J. A. Jacobsen, in "Das Ausland." Nos. 14, 15 (pp. 267-9, 290-3).

Mr. R. E. C. Stearns describes the games of "*Ha*," as played by the Nishinam Indians.

"Aboriginal Fire-making." By Walter Hough. (Illustrated.) "The following is a classification of the chief methods of fire-making by friction based upon the presumed order of development:

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|--|---|---|
| <p>i. On wood (reciprocating motion) by—</p> | { | <p>1. <i>Simple two-stick apparatus</i>.—Indians of North, Central, and South America; Ainos, Japan; Somalis, Africa; most Australians, &c. The most wide spread method.</p> <p>2. <i>Four-part apparatus, mouth drill, and two-hand drill</i>. Eskimo, some Indians, Hindoos, and Dyaks.</p> <p>3. <i>Compound, weighted drill</i>.—Iroquois and Chukchis.</p> |
|--|---|---|

- ii. On wood (sawing motion) Malays and Burmese.
- iii. On wood (ploughing or } Polynesians; some Australians.
planing motion)
- iv. Of minerals (percussion) {
 - 1. *With pyrites (or stone containing iron) and flint.* Eskimo and Indians of the north (Algonkian and Athapascan stocks).
 - 2. *Flint and steel.*—Modern and disused methods and appliances."

"Iroquois Superstitions."

"THE AMERICAN ANTHROPOLOGIST," Vol. iv, No. 1, has a communication on "The physical characteristics of the Indians of the North Pacific Coast." By Franz Boas. Also an important (illustrated) paper on "Arrows and arrow-makers." By Otis T. Mason, and others.

"THE TRANSACTIONS OF THE AUSTRALIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE," Melbourne, 1890, contains an article by Bolton S. Corney, Chief Medical Officer of Health, Colony of Fiji, on "Certain mutilations practised by natives of the Viti Islands," the operations being known by the names of Thoka losi, and Silindaku.

"THE AMERICAN ANTIQUARIAN," Vol. xiii, No. 1, contains an account of "The Great Cahokia Mound," by S. D. Peet (illustrated.) This mound is described as being situated with other earthworks about twelve miles from St. Louis, and as being the largest pyramid mound in the United States. During excavations, numerous relics have been disinterred, the patterns on the pottery being remarkably similar to those on the gravestones at Tennessee. "One specimen was especially interesting. It represented a squirrel holding in its paws a stick, the teeth placed round the stick as if gnawing it, the whole making a handle to the vessel. We noticed also a frog-shaped pipe made from sandstone, and many other animal-shaped and bird-shaped figures." The paper also gives a list of mounds formerly on the site of St. Louis, and of those near Evansville, Ind. Mention is also made of other pyramid mounds in the U.S.

"A weird mourning song of the Haidas." By James Deans.

"L'ANTHROPOLOGIE," Vol. ii, No. 1, contains "Tunisie. Les mégalithes de Bulla Regia. Les alignements de la plaine de la Medjerdah et les sépultures du Djebel Herrech." By Dr. Carton. The paper is carefully illustrated, and accurate measurements are given. The author in concluding draws attention to the great difference which exists between the stone tables of Bulla and the other remains equally termed "Mégalithes," such as those of Ellez. "Tandis que les premiers sont faits de blocs de grossiers, et que leur unique chambre est très irrégulière, les autres sont en dalles de formes plus géométriques, que ce soit ou non le résultat d'un équarrissage, et forment un système de chambres assez compliqué. Si les deux genres de mégalithes ont été construits par des

individus d'une même race, ils doivent certainement correspondre à deux phases différentes de l'évolution de celle-ci."

"De quelques cachettes découvertes dans le Finistère." By Paul du Chatellier. (Illustrated.) The paper gives a description of the discovery of gold and bronze ornaments, &c., in the Department of Finistère.

"Le Grec du Nord-Est de l'Asie Mineur au point de vue Anthropologique." By A. G. Néophytos. Contains the measurement of seven skulls. The author, however, does not draw any conclusions owing to the small number compared. In the second part of the paper, measures of the living subject are given, while the third part gives details concerning the colour of the hair and eyes.

"Cranes Modernes de Montpellier," by G. de Laponge, is a continuation of a paper in the "Revue" (November 15th, 1889), giving a series of measures of skulls removed from the burial ground of the convent.

Review of "Relations entre la Scandinavie et l'Europe occidentale avant l'ère Chrétienne." By Prof. Oscar Montelius. (Illustrated.)

"Ethnographie précolombienne du Venezuela, region des randals de l'Orénoque." Paris, 1890. By Dr. Marcano. The review of this work states that the author describes the races which inhabited the ancient Spanish Guyana comprised between the Atlantic and the Esquibo on one side, and the Rio Negro on the other. After great difficulty fifty-two skulls of males, and forty-three of females were obtained, and the measurements are given. Important rock carvings are stated to have been discovered.

"Notes anthropométriques sur les indigènes du Turkestan." Par A. Bogdanoff. Thirty-two individuals are stated to have been measured, 10 Ouzbeks, 4 Tadjiks, 8 Sartes, 6 Persians, 1 Turk, 1 Kizilbach, 1 Tartar (cross-breed), and 1 Kiptchak.

Among the "Notes" are articles on "The Bronze Age in Egypt," and "New Researches on the Etruscan Language."

"THE JOURNAL OF THE ANTHROPOLOGICAL SOCIETY OF BOMBAY," Vol. ii, No. 1, contains an article on female circumcision among the Somal, also the address of the President, Dr. W. Dymock, on "India as a field for anthropological research." The chief subjects for enquiry are here stated to be the future religion of the educated classes, fetishism, caste, and the progress of medicine. In conclusion, the author urges on the Society the paramount importance of the establishment of an Anthropometric laboratory. The other papers are:—"On Superstitions of the Goapeople from Portuguese sources," by E. Rehatsek; on the "Narcotics and Spices of the East," by Dr. W. Dymock; and on the "Towers of Silence in India," with illustrations, by Bomanjee Byramjee Patell.

"SCIENCE," February 6th, contains an article on the "Study of Indian languages," by J. W. Powell, in which is a list of fifty-eight family names, with the *habitat* of each. Also an article (with table) on "Hereditary deafness: a study," by Job Williams.

THE "BULLETIN OF THE ANTHROPOLOGICAL SOCIETY OF BRUSSELS," Vol. viii, contains a communication (with two plates) by MM. W. de Pauw and E. van Overloop, on the "Prehistoric workshops of Spiennes."

Also a paper by M. de Puydt on excavations on the prehistoric station of Latinne, called "Cité Davin," carried out in March, 1889. (Illustrated.)

A contribution towards the study of the anthropology of the Congo near the Falls. (4 plates.)

A plate illustrating a find of flint implements at Moulin de la bruyère, near Rickheim (Belgian Limbourg).

A plate illustrating various fan-shaped arrowheads in flint.

Photographs (full face and profile) of three Samoan natives, island of Tutuila, with measurements. By M. Houze.

"THE PROCEEDINGS OF THE ASIATIC SOCIETY OF BENGAL," No. 1, January, 1890, contains an illustration with description of the Thibetan Zodiac. By Babu Saratchandra Dás.

No. 7, 1890, contains a description of a stone recently found at Mudga'-Asráma (Kashta-harani ghát), Mungir. (Illustrated.) By L. A. Waddell.

No. 9 contains a description (illustrated) of a birch bark manuscript found by Lieut. Bower near Kuchar in Kashgaria. Most of the letters are stated to correspond with the ancient Newari and Wartula characters, but the manuscript remains untranslated.

No. 10 contains a note (figured) on the Maniktham monolith in the Puraniya district.

"THE JOURNAL OF THE ASIATIC SOCIETY OF BENGAL," Vol. lviii, Part 1, No. 3, 1889, consists of a paper by Vincent A. Smith, Bengal C.S., on "Græco-Roman influence on the Civilization of Ancient India." (With four plates.)

"THE JOURNAL OF THE ASIATIC SOCIETY OF BENGAL," Vol. lix, Part 1, No. 1, 1890, contains a grammar of the dialect of Chhattísgarh, in the Central Provinces. Written in Hindí by Mr. Hírálál Kávy-opádhyáya, headmaster of the Anglo-vernacular school in Dhamtarí, District Raipur, Central Provinces, translated and edited by G. A. Grierson, Esq., C.S. The introduction states "Chhattésgarh (the thirty-six forts) is the name of the most eastern of the divisions of the Central Provinces. It is bounded on the north by Chuṭiyá Nágpur, on the east by Orissa, and on the south and west by other portions of the Central Provinces. The language spoken in this tract belongs clearly to the Eastern Gaudian family. It may be classed as a dialect of Bihári. Its verbal forms are most closely connected with those of Baiswári, while its system of declension more closely resembles that of Bhoj'purí. In one important point, the formation of the plural, it shows a close connection with Uriyá."

"Notes on a Buddhist Monastery at Bhoṭ Bágán (Howrah), on two rare and valuable Thibetan MSS. discovered there, and on Púran Gir Gosaim, the celebrated Indian Achárya and Government Emissary at the court of the Tashi Lama, Thibet, in the last century." By Gaur Dás Bysack. (With two plates.)

"JOURNAL OF THE ROYAL SOCIETY OF ANTIQUARIES OF IRELAND," No. 3, Vol. i, contains a paper by Seaton T. Milligan, M.R.I.A., on "Some recent cases of remarkable longevity," with portraits of Mrs. Kate M'Grath, aged 102 years, Mrs. Branney, aged 107 years, and Mrs. Peggy Elliot, aged 107 years.

Vol. i, No. 4, 5th Series, describes Cromlechs at Malinmore; and Crosses at Glencolumbkille are described and illustrated. Also two hitherto undescribed inscriptions in Irish at Clonmacnoise. (Two illustrations.) By W. A. Wakeman.

"TRANSACTIONS OF THE ROYAL SOCIETY OF EDINBURGH," Vol. xxxv, Part 4, contains an important article, illustrated with two coloured and five uncoloured plates, on "*Strophanthus Hispidus*." By Dr. Thomas R. Fraser. The author describes eight arrows coated with this poison, and enters most minutely into the details relating to its chemistry, toxic power, and botanical description.

"THE PROCEEDINGS OF THE SOCIETY OF ANTIQUARIES OF SCOTLAND," Vol. xi (N.S.), contains "Notes of a visit to a terp mound at Aalzum, in North Friesland, Holland." By R. Munro, M.D.

"Notes on cup-marked rocks in various localities." (Illustrated.)

"Primitive implements, weapons, ornaments, and utensils from Wigtownshire." By Sir Herbert E. Maxwell, Bart., M.P., F.S.A. Scot. (Fully illustrated.)

"Sculptured stones at Kirk Andreas, Isle of Man, one bearing an inscription in bind-runes; with notices of other bind-rune inscriptions." By G. F. Black (illustrated), together with other papers.

"THE TRANSACTIONS OF THE ASIATIC SOCIETY OF JAPAN," Vol. xvi, Part 2, contains "Specimens of Ainu Folk-lore." By Rev. J. Batchelor.

"PROCEEDINGS OF THE ROYAL GEOGRAPHICAL SOCIETY," January, 1891. It is stated that Mr. J. Theodore Bent has decided to make an expedition to the ruins of Zimbabwe in Mashonaland, under the auspices of the British East African Company and the Royal Geographical Society.

M. Coudreau is stated to have surveyed about 450 miles on the Oyapock, French Guiana, and to have collected 2,500 words of the Oyampi language.

"THE ARCHÆOLOGICAL JOURNAL," No. 188, 1890, contains a paper (illustrated) on "Roman Antiquities of the middle Rhine." By Prof. Bunnell Lewis, F.S.A. The more important objects described being the Mithraic Tablet at Wiesbaden and a mosaic pavement at Darmstadt.

"FOLK-LORE," Vol. ii, No. 1, contains the opening address by G. L. Gomme. "Magic songs of the Finns," by Hon. J. Abercromby. "The legend of the Grail," by M. Gaster. "A description of the Servian national custom, 'Slava' (literally, glory and celebration)," by Col. Grant Maxwell. "Bhuridatta," a Buddhist legend, by R. F. St. A. St. John; with other communications.

"THE PROCEEDINGS OF THE SOCIETY OF BIBLICAL ARCHÆOLOGY," Vol. xiii, Part 4, contains a paper by Miss L. Macdonald on "Inscriptions relating to sorcery in Cyprus."

"THE BULLETIN OF THE ANTHROPOLOGICAL SOCIETY OF PARIS," Vol. i, Part 1, 4th Series, contains a paper on "Anthropological observations made by Count Teleki on certain tribes in East Central Africa," a careful description of some of the customs of the Masai being given.

Also a communication by M. Dorlhac de Borne, on the Gaboon. Pure-blooded natives are said to be dying out, and in their place numerous tribes have entered the country.

The preparation of manioc and other food is described, also the dance called Okoukoué, with other ceremonies.

Part 2 contains, among other papers, one on the mountain region of Eastern Africa, by E. Verrier; a social study of the natives, with map of the district extending from Abyssinia to the Zambesi, and from the coast to the great lakes. Also replies to anthropological and ethnographical questions on the natives of Kafiristân, by Guillaume Capus. M. Paul Bataillard describes the emigration of the Tsiganes (Gypsies) in the 15th century.

Part 3 contains an article by M. A. Dumont on the birth rate in the Canton of Fouesnant (Finistère); Notes on a tumulo-dolmen near Arles, by M. Nicolas; A description of Punic tombs at Carthage, by Dr. Fauvelle (illustrated); also an account of the neolithic workshops of Cormeilles-en-Parisis (Seine et Oise). Illustrated.

"THE MEMOIRS OF THE ANTHROPOLOGICAL SOCIETY OF PARIS," Vol. iv, 2nd Series, Part 2, contain papers on the pre-Columbian Ethnography of Venezuela, by Dr. Marcano. (Illustrated.) Also on the retro-version of the head of the tibia and the human attitude in the Quaternary period, by Dr. Manouvrier.

"THE JOURNAL AND PROCEEDINGS OF THE ROYAL SOCIETY OF NEW SOUTH WALES," Vol. xxiii, Part 2, pp. 335-449, contains an article on "The Australian Aborigines." By Rev. John Matthew, M.A. (With plate and map.)

Mr. Matthew states "having expressed the conviction that the aborigines of Australia were Papuan, and that they were the ancestors of the Tasmanian race so recently extinct, I now propose to verify this hypothesis by presenting converging lines of cumulative evidence. There are proofs adducible from physiology, mythology, implements, customs, and language, some more decisive and striking than others, but when combined, so varied and powerful as, I think, to render my position incontestible."

Also "The Aborigines of Australia," being personal recollections of those tribes which once inhabited the Adelaide Plains of South Australia. By Edward Stephens, Esq., pp. 476-503, with short vocabulary.

Vol. xxiv, Part 1, contains a paper by W. T. Wyndham, of Boyne Island, Queensland, on "Australian Aborigines: Varieties of food, and methods of obtaining it." A short vocabulary of the language of the Ucumble tribe is given of words relating to food and food supply.

"JOURNAL OF THE CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY," N.S., Vol. xxiv, contains an article by Ernest Faber on "Pre-historic China."

This paper investigates the history of Chinese written characters as a guide to the history of the Chinese people. The section more intimately connected with anthropology is "Chinese Accounts of the History of their Earliest Civilization." The author states:—"As the I-king or book of changes is the highest authority for everything relating to human affairs among the Chinese, I shall begin with the few statements contained therein. In the Great Appendix we read—

(1) That in ancient times Pao Hi (commonly placed in the 29th century B.C.) invented—*a.* The Eight Trigrams; *b.* The knitting of strings of various kinds into nets for hunting and fishing.

(2) That Shin Nung (28th century B.C.) fashioned wood to form the share, and bent wood to make the plough handle. The advantages of ploughing and weeding were then taught to all under heaven.

(3) That he caused markets to be held at mid-day, thus bringing together all the people, and assembling all their wares at one place. They made their exchanges and retired, everyone having got what he wanted.

(4) That Hwang Ti, Yao and Shun (27th to the 23rd centuries B.C.), simply wore their upper and lower garments (as patterns to the people), and good order was secured to all under heaven.

(5) That they hollowed out trees to form canoes; they cut others long and thin, to make oars. Thus arose the benefit of canoes and oars, for the help of those who had no means of intercourse with others. They could now reach the most distant parts, and all under heaven were benefited.

(6) That they used oxen (for carts) and—

(7) Yoked horses (to chariots), thus providing for the carriage of what was heavy, and for distant journeys, thereby benefiting all under the sky.

(8) That they made the defence of double gates, and—

(9) The warning of the clapper, as a preparation against the approach of marauding visitors.

(10) That they cut wood and fashioned it into pestles; they dug into the ground and formed mortars. Thus the myriads of the people received the benefit arising from the use of this pestle and mortar.

(11) That they bent wood by means of string, so as to form bows, and sharpened wood so as to make arrows. This conferred the benefit of bows and arrows, and served to produce everywhere a feeling of awe.

(12) That in the highest antiquity men made their houses (in winter) in caves, and (in summer) dwelt in the open country. In ages subsequent to these, the sages substituted houses with the ridge-beam above, and the projecting roof below, as a provision against wind and rain.

(13) That when the ancients buried their dead, they covered the body thickly with pieces of wood, having laid it in the open country. They raised no mound over it, nor planted trees around, nor had they any fixed period of mourning. In subsequent ages the sages substituted for these practices the inner and outer coffins.

(14) That in the highest antiquity, government was carried on successfully by the use of knotted cords (to preserve the memory of things). In subsequent ages, the sages substituted for these written characters and bonds. By means of these (the doings of) all the officers could be regulated, and the affairs of all the people accurately examined." The paper is illustrated by explanatory wood blocks of various elementary Chinese characters.

"SIXTH REPORT ON THE NORTH-WESTERN TRIBES OF CANADA." (With map.) British Association for the Advancement of Science, Leeds Meeting, 1890. The committee state that they have been able once more to secure the services of Dr. Boas, who has drawn up the bulk of the report on the tribes of British Columbia, this being preceded by a linguistic map of British Columbian Ethnology by Mr. Horatio Hale. The coloured map gives the localities of the various tribes, and Dr. Boas enters minutely into their manners, customs, and religions. The volume contains accurate drawings of masks and paintings, with many songs, &c., set to music. An important section (illustrated) relates to "Deformed crania from the North Pacific Coast." The report ends with comparative vocabularies.

"THE SMITHSONIAN REPORT," NATIONAL MUSEUM, for 1888, contains, in the anthropological portion, the report on the department of prehistoric anthropology, by Thomas Wilson, Curator. Two plates are given of a "Flint implement of human manufacture, from the Equus Beds of the Tertiary Geologic period, San Diego, Texas," thus described:—"Another accession, which may prove of importance, is a flint implement of the rudest type, being merely chipped to a point, or with an edge not more than an inch in width, which was discovered half a mile from the town of San Diego. It was found by Mr. W. Taylor three or four feet under the surface in undisturbed layers. Mr. Taylor has found several other implements of the same kind, showing that this was not a solitary or isolated case. This implement becomes important from the fact

that it was found near the top of the equus beds of that district, which have become celebrated in the paleontology and geology of our country. The mylodon, glyptodon, elephas, and three species of equus, all extinct animals, have been found fossilized in these beds, and it seems agreed amongst scientists that these beds belonged to the Tertiary geologic period."

The volume also contains an important report (profusely illustrated) on "The coast Indians of Southern Alaska and Northern British Columbia." By Ensign A. P. Niblack, U.S. Navy.

The paper deals with the following:—(1) Chorography of Southern Alaska and Northern British Columbia; progress of ethnological work in this region—classification of Indian stocks—history. (2) Environment; organic and inorganic. Characteristics of Indians—Physical, emotional, intellectual, moral, and æsthetic. (3) Regulative organization: consanguineal, political, and industrial; origin of "Mother-rule" and "Father-rule"—totemism and tribal organization; chiefs, freemen, and slaves property; (4) Mutilations, primitive clothing, weaving, &c. (5) Food, implements and weapons, spears, traps, &c. (6) Landworks, temporary dwellings, villages. (7) Arts and industries, paintings, carvings, music. (8) Productions, locomotion, wealth, trade. (9) War and peace. (10) Vices and demoralization. (11) Shamanism. (12) Mortuary customs. (13) Feasts, dances, initiatory ceremonies, &c. (14) Traditions.

The following is given as a tradition of the creation and origin of man:—"The traditions and myths of the northern group of the North-west coast (Tlingit, Haida, and Tsimshian), are very similar, but with peculiar local variations. No attempt can be made here other than to outline the principal tradition of the creation and of the origin of man, and that only to illustrate the general character of their beliefs and ideas. In their legends and traditions we have the unconscious expression of their religious, moral, and æsthetic ideas, their views of life and death, their cosmogony and astrology, their fanciful biographies and histories, and their explanations of all the phenomena of nature. Related round the log fire in the family circle, with loud and confident voice, with laboured and dramatic imitations and gestures, and listened to with rapt attention by the inmates of the lodge, they represent the history of human thought—the blind gropings of the mind to know—in this narrow pocket of the world, and as such are as worthy of careful compilation and study as if they were facts of veritable history. The creator of all things and the benefactor of man was the great raven called by the Tlingit Yetl, Yeshl, or Yeatl, and by the Haida Ne-kil-stlas. He was not exactly an ordinary bird, but, like all old Indian mythical characters, had many human attributes, and the power of transforming himself into anything in the world. His coat of feathers could be put on or taken off at will like a garment, and he could assume any character whatever. He existed before his

birth, never grows old, will never die. Numerous are the stories of his adventures in peopling the world, and giving to man the earth, fire, fresh water, life, fish, game, &c. According to the Haida and Kaigani the first people sprung from a cockle shell (*Cardium corbis*, Mart). Ne-kil-stlas became very lonely and began to look about him for a mate, but could find none. At last he took a cockle shell from the beach, and marrying it, he still continued to brood and think earnestly of his wish for a companion. By-and-by he heard a faint cry in the shell, which gradually became louder till at last a little female child was seen, which by degrees grew to be a woman and married the raven. From this union came all the Indians of this region, who at first lived in darkness and want. As they multiplied, Yetl or Ne-kil-stlas endowed them with the various gifts of light, fresh water, fire, &c. All these were in the possession of the chief evil spirit, a great chief, the uncle of Yetl, who lived on the mainland where the Nass river now is. He was master of the tides and had great power, and the stories of how Tetl circumvented him are numerous and interesting. The Haida name for this uncle is Setlm-ki-jash, the Tlingit designation being Kees-du-je-al-ity Kah or Keesshusaah Ankow. He had a wife and sister, or according to some versions, a wife and daughter. Of his wife he was very jealous, and whenever for any reason he was away from home, hunting, fishing, or working, he imprisoned her in a box or basket, and tied her up to the rafters in the lodge, setting a number of little red birds to watch her. If by any chance the box was opened, the birds would fly to him and warn him. He was also very jealous of the posterity of his sister (or daughter), whose children he killed for fear that when they grew up they would prove rivals to him in his wife's affections. According to the Haida tradition, he threw her progeny into the fire; according to the Tlingit, he drowned them. This sister (or daughter) was not allowed to eat or drink anything until the chief had examined it, as she had become pregnant from eating certain things many times before. As every part of the house was so jealously guarded, Yetl or Ne-kil-stlas did not know how to get in to steal the various things he wanted for the good of man, but finally he hit upon the plan of being born into the family. One day he saw the sister (or daughter) go to the brook to get a drink, so transforming himself into a drop of water (or spear of cedar or blade of grass), he eluded the vigilance of the chief and was swallowed by the girl, and in due time Yetl was born to her as a son. She concealed the fact of his birth from the chief for some little time. In ten days time he grew to almost man's size. His mother taught him many things, amongst others, the use of the bow and arrow, and he became an expert shot. With his arrow he killed the magical crane whose skin enabled the wearer to fly, and the diver with whose skin he could float. One day the chief discovered Yetl and pretended to be pleased with him, but he took him out in a canoe and threw him overboard. Yetl, having on his diver's

skin, walked along the bottom and met his uncle on shore. Next the chief threw him into the fire, and piled logs on him, but having on a magic cloak he came out of the fire unharmed. One day when the chief was away, he opened the box in which his wife was confined and released her, but the little birds flew to him and informed him. The chief returned in a great rage, but Yetl sat calmly without noticing him. This was too much for the master of the tides, so he commanded the floods to rise and destroy this impudent meddler. But Yetl, giving his mother the skin of the diver to enable her to swim, himself put on the skin of the crane. The salt water rose until it began to come in the door, when the chief put on his tall dance hat which made him amphibious, and Yetl flew out through the smoke-hole. As he flew, he began to tire, and was compelled to come back from time to time to rest on the chief's dance hat, which was the only thing visible, till finally he gained strength enough to fly to the sky, which he pierced with his beak and hung to until the tide reached to his wings, when it began to subside. Finally he let go of his hold, and, flying for some days, he lit on a bunch of kelp to rest. At this point the story varies so much in different localities that it is difficult to make it at all general. According to the Kaigani Yetl descended into the sea and rescued his mother from the lord of the tides; according to the Tlingit, a sea otter carried him ashore from the kelp; according to the Stikine Indians, he lit originally on the Queen Charlotte Islands, and picking up pieces of the Douglas pine in his bill, he flew over the other islands, and wherever he let fall a piece of this wood, the Douglas pine is now found. Fresh water he stole from the lord of the tides by strategy; also the new moon. In the carved column (figured) one of the figures represents Yetl with the new moon in his bill and the dish of fresh water in his claws, in illustration of this part of the legend.

"He also stole the sun and the stars from the boxes in which they were imprisoned by the lord of the tides. When the sun shone forth for the first time all the people were frightened and ran in all directions; some of them into the mountains, some into the woods, and some into the water, and all of these were transformed into animals according to their hiding-place. Fire he obtained from an island in the sea. He reached there by the help of his magic bird skin, and seizing a burning brand in his beak he started back; but the journey was so long that nearly all the wood burned up, and even the point of his bill was scorched black, and he had to let it drop. The sparks flew over the ground in all directions. From this time both the wood and stone contained fire, which can be obtained from the one by striking it, and from the other by rubbing. Endless are the details of the adventures of Yetl, not to mention the other traditions and myths which no one Indian can ever learn. Many of them are remembered simply as bearing on or relating to the totem of the individual. In general their belief is in indwelling spirits. The sea, the woods, and the air are

peopled with them. All the phenomena of the universe are attributed to their action, and most of the rites of these Indians of a religious nature are in the direction of propitiating them. It is not the purpose here to treat of the traditions, myths, and beliefs of the Indians. The subject is of worthy study, and will undoubtedly receive the attention it merits."

A short bibliography is added.

"Fire-making apparatus in the U.S. Museum," by Walter Hough, is treated (and illustrated) under the following heads:—

(i.) Fire-making by reciprocating motion.

1. Simple two-stick apparatus; Indians of the two Americas, Ainos, Somalis, Kaffirs, Veddahs, Australians, &c.
2. Four-part apparatus: Eskimo, some Indians, Hindoos, and Dyaks.
3. Weighted drill, with spindle whorl; Iroquois and Chukchis.

(ii.) Fire-making by sawing.

Malays, Burmese, &c.

(iii.) Fire-making by ploughing.

Polynesians, Australians, and Papuans.

(iv.) Fire-making by percussion.

1. With pyrites, or stone containing iron and flint: Eskimo and Northern Indians.
2. With flint and steel: General.

(See also "American Anthropologist," Vol. iii, No. 4.)

"A study of prehistoric anthropology." Handbook for beginners. By Thomas Wilson. The author states that the reason for its publication is that "No general work on this subject applicable to the United States is easily attainable. Many requests have been received by the author for elementary information. It was found impossible to give satisfactory answers by letter, and this paper has therefore been written as an answer to serve temporary purposes until a more complete work shall have been prepared." The article is fully illustrated.

"Results of an inquiry as to the existence of man in North America during the palæolithic period of the stone age." By Thomas Wilson. (Illustrated.) The paper contains replies to a circular issued by the Smithsonian Institution.

"THE SMITHSONIAN REPORT," 1888, contains the bibliography for 1887 and 1888, by Otis T. Mason.

Also an article on the name "America," by Jules Marcou. The author claims that the name "America" was taken from the mountain range and India tribe at the centre of the continent, and brought into general use by the people who had been there." The tribe referred to is described thus:—"The Amerriques tribe of Indians, now few in number, are confined to their mountains, called Sierra Amerrique, which form the cordillera between Lake

Nicaragua and the Mosquito coast, in the province of Chontales, Nicaragua."

"THE TRANSACTIONS OF THE CANADIAN INSTITUTE," Vol. i, Part 1, October, 1890, contain a communication "on the Hurons," by D. B. Read, Q.C. The author states the following facts with regard to their history:—"The Huron nation, which occupied all the territory forming the peninsula between Lake Ontario and Lakes Huron and Erie, was a nation within a nation. The great Algonquin family of Abenakis claimed all the territory extending from the St. Lawrence to the Rocky Mountains. Mr. Schoolcraft, the distinguished American ethnologist, has classified the North American Indians as follows:—1st, Northern, extending from the Atlantic to the Pacific Ocean. 2nd, East of the Mississippi and the Rocky Mountains. 3rd, West of the Mississippi and the Rocky Mountains. 4th, West of the Rocky Mountains. These embrace altogether thirty-seven families, under which there are numerous subdivisions. He gives the name of the Iroquois as one of the subdivisions, but does not name the Hurons, which goes to establish that he considered the Hurons as a branch of the Iroquois. . . . How long the Hurons had been in the possession of their hunting grounds in the vicinity of Lake Huron is not known with any degree of certainty, but that they had been there for many decades, and it may be for many centuries, is evident from the fact that when Champlain, in the year 1611, established the frontier trading post of Montreal, he at once set about arranging for trade with the distant Hurons, a large and populous tribe. It has been computed that, at that time, not less than 1600 of this aboriginal people occupied the forest home of the Hurons."

"JOURNAL OF THE ROYAL INSTITUTION OF CORNWALL," Vol. x, Part 2, contains an article on "A Large Inscribed Stone, from Iquique, South America." The markings consist of rude representations of human feet, animals, &c., and the author, Mr. Henry Crowther, makes the following suggestion as to the interpretation:—

"The stone probably relates the deeds of a king who carried his people from a northern settlement to a land of plenty, amongst the lakes of South America. They were opposed by enemies whom they passed, and by others whom they avoided. Near these lakes, around which the mountains ejected fire, they formed a settlement, and offered up sacrifices to the Spirit of the Universe."

The volume also contains an article on "Some Recent Archæological Discoveries in Cornwall." (6 plates.)

"SCULPTURED ANTHROPOID APE HEADS, found in or near the valley of the John Day river, a tributary of the Columbia river, Oregon," by James Terry. (4to. 5 plates.) The author states:—"These three specimens were found in or near the valley of the John Day river, a tributary of the Columbia. They would be classed by archæologists as surface finds, a classification which would cover a large proportion of the archaic remains of the valley, from the fact that the shifting sand dunes, which were largely

used for burial purposes, are continually bringing them to the surface and exposing them. Each specimen is clearly a complete object in itself, never having formed a part of any large sculpture from which it might have been detached or broken. They were carved from a dark, pumiceous, basaltic rock, abundance of which is found in the valley."

"ARCHÆOLOGIA," Vol. lii, Part 1, contains "Recent Researches in Barrows in Yorkshire, Wiltshire, Berkshire, &c.," by Rev. William Greenwell, F.R.S. The scope of the paper is thus described by the author:—"Subsequent to the publication of *British Barrows* in 1877, which recorded the opening of 234 sepulchral mounds, situated in six counties, all, with the exception of Gloucestershire, in the North of England, I have examined 61 in addition. I propose in the following account to give the precise details of the exploration of these Barrows, in order that the facts then observed may be put on record and made available for the use of those interested in this important branch of our native archæology." (34 illustrations.)

Also a paper on the exploration of a Barrow at Youngsbury, near Ware, Herts, by John Evans, F.R.S., President.

"THE PROCEEDINGS OF THE SOCIETY OF ANTIQUARIES," London, Vol. xiii, No. 2, contains a paper by Gen. Pitt-Rivers on models of ancient monuments, and on some points in the development of the Celtic Cross in Scotland, illustrating his remarks with a fine series of over 40 models of Crosses, &c., all made to a uniform scale.

"REVUE MENSUELLE DE L'ÉCOLE D'ANTHROPOLOGIE DE PARIS." No. 2 contains an article by M. Laborde, "Les fonctions intellectuelles et instinctives." (3 plates.) "Chronique préhistorique," par Gabriel de Mortillet. Also other papers.

No. 3 contains "L'Évolution Mythologique," by Ch. Letourneau, and other notes.

"THE PROCEEDINGS OF THE BOSTON NATURAL HISTORY SOCIETY," Vol. xxiv, contains an article on "Palæolithic Man in Eastern and Central North America" (Part 3, 6 plates), by various authors. The subject is divided into (1) Early man in the Delaware valley:—The rock shelter at Naaman's Creek; Palæolithic implements from the Delaware gravels; (2) Implement from the Indiana gravel; (3) The age of the Philadelphia red gravel; (4) Waterworn implements from the Delaware River; (5) Concluding remarks, with illustrations from Delaware, Indiana, New Jersey, and Minnesota.

"RECORDS OF THE GEOLOGICAL SURVEY OF NEW SOUTH WALES," Vol. ii, Part 2. The number contains "Notes on the shell heaps or kitchen middens accumulated by the Aborigines of the Southern Coastal District" (2 plates), by William Anderson. Also "Descriptions of some stone weapons and implements used by the Aborigines of New South Wales," by the same author; and "On some beautifully formed stone spearheads from Kimberley, North-

West Australia," (with plate) by R. Etheridge, Junr. The author concludes his paper as follows:—"We have thus in Australia at least four, and perhaps five types of wholly or partially stone-headed spears. (1) Simple double-edged, lanceolate, three-faced heads, with a more or less entire margin. Melville Island, Port Essington and Cape York. (2) Double-edged, three-faced, lanceolate heads, with the cutting edges serrated in a greater or less degree, North West Australia; (3) Wooden spearheads barbed on both sides with fragments of sharp stone, and called Karkuroo, Mongile, or Wal. Great Australian Bight to Grampians in Victoria; (4) Wooden spearheads barbed on one side only, called Gidjee, &c., Western Australia; (5) Well shaped, rounded, and pointed polished heads of greenstone, North Australia."

"ARCHIV FÜR ANTHROPOLOGIE," Vol. xix Part 4, contains, with other papers, an important bibliography of anthropological and other literature.

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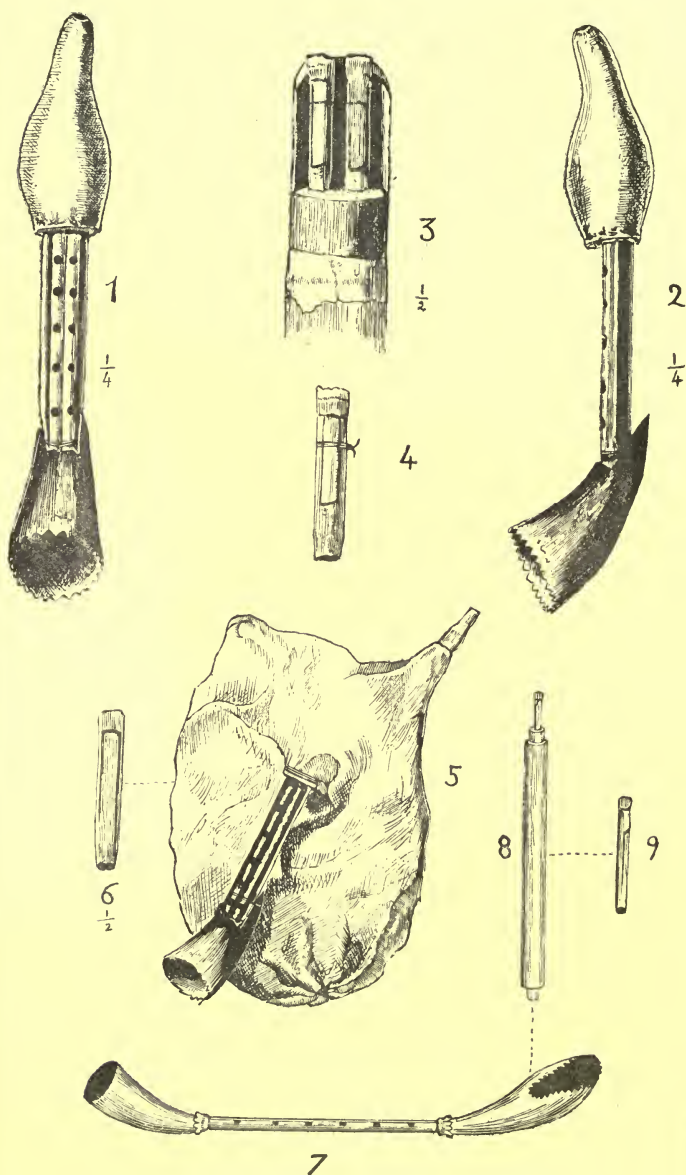
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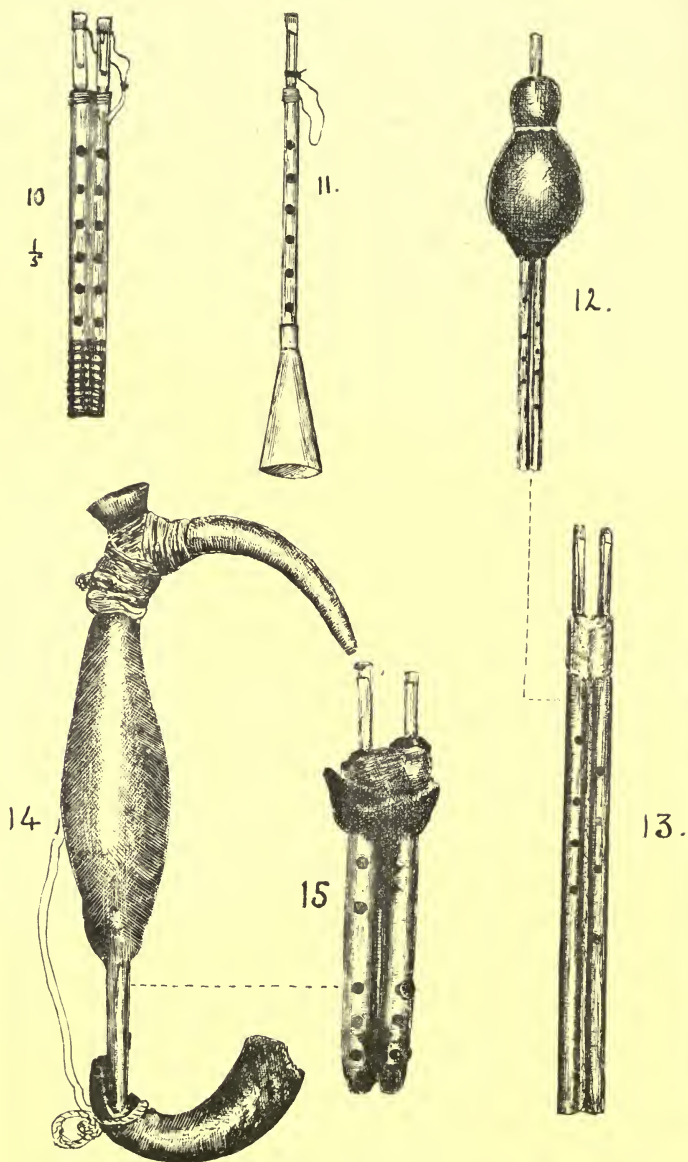
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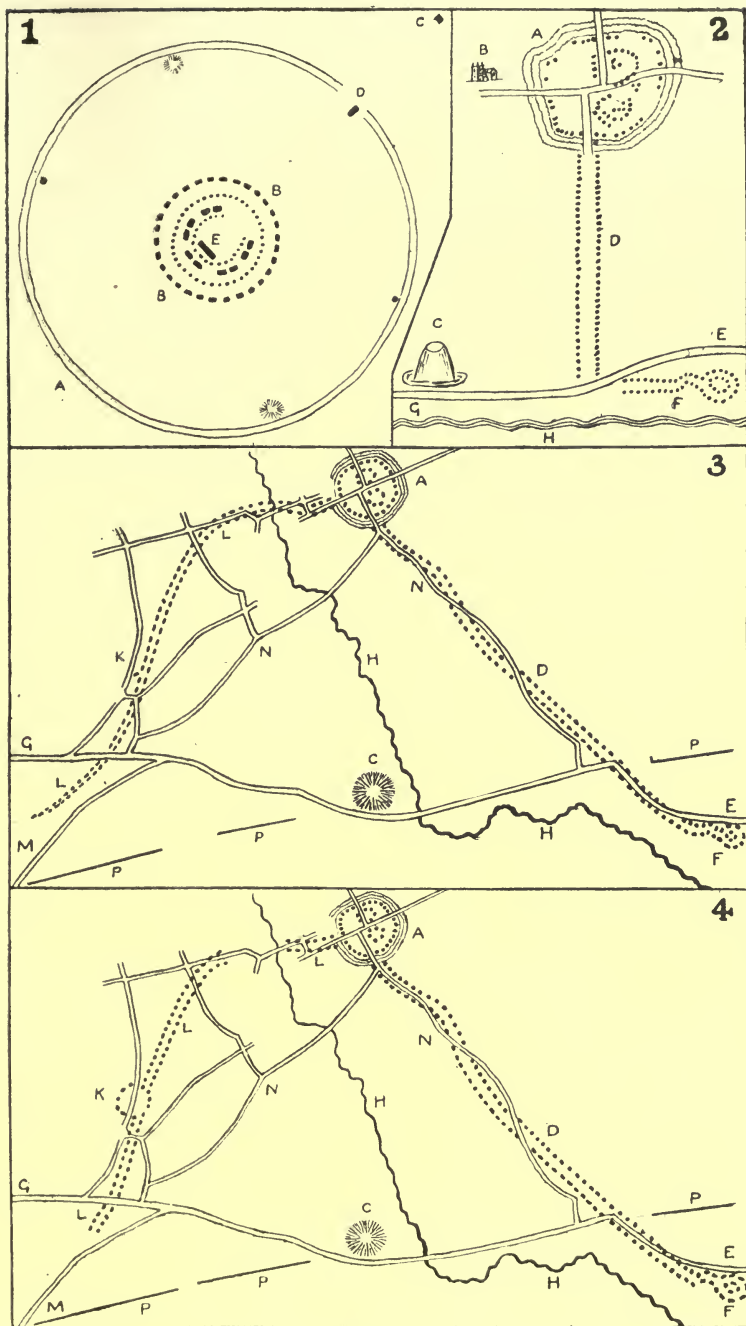
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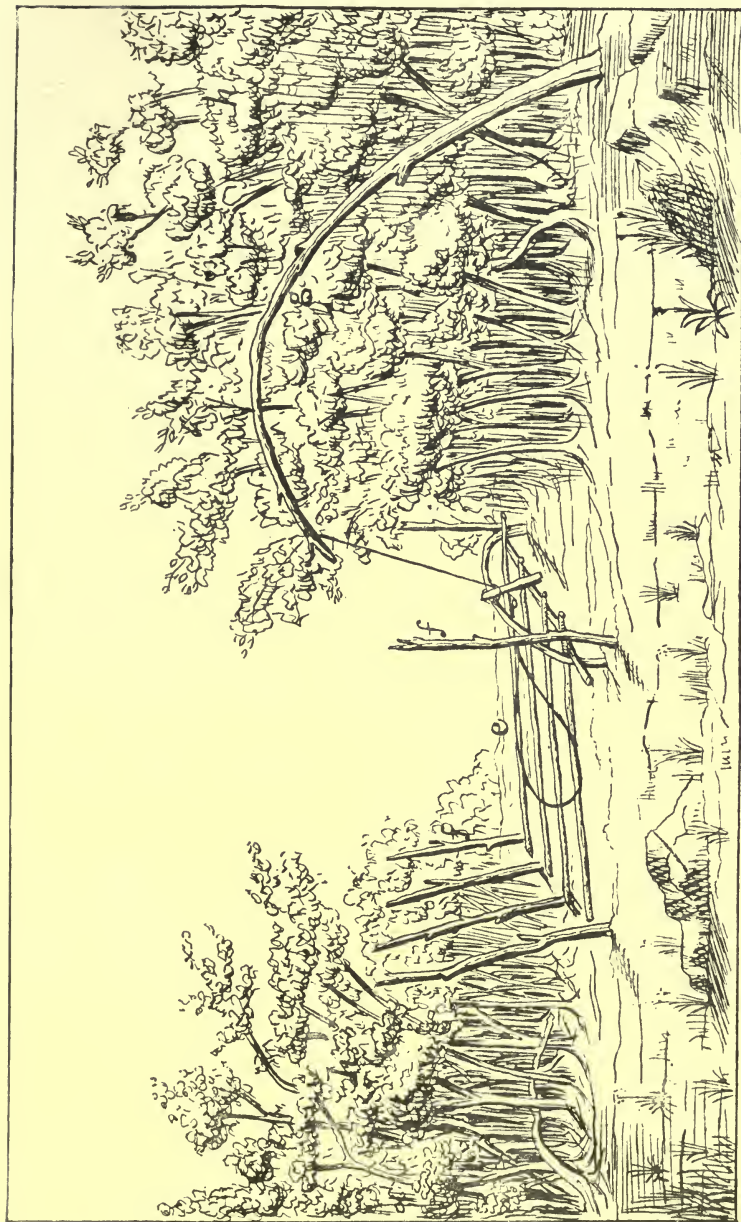
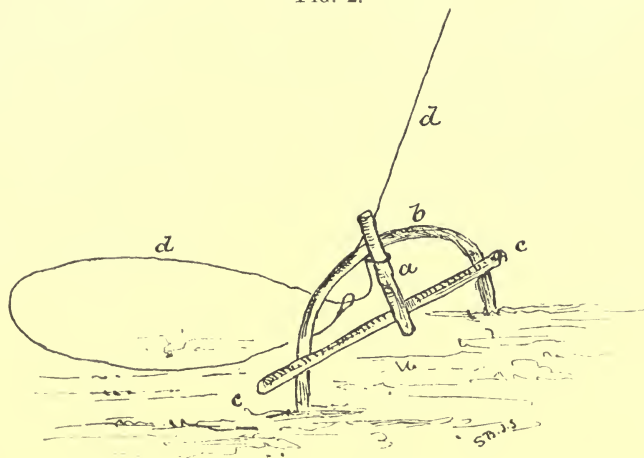


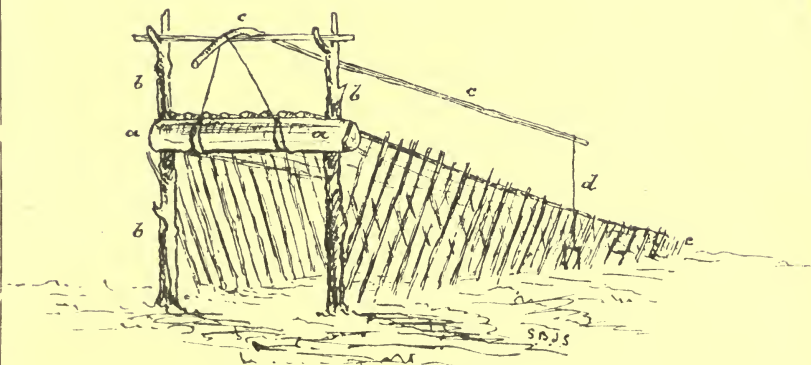
FIG. 1.--JERAT.

FIG. 2.



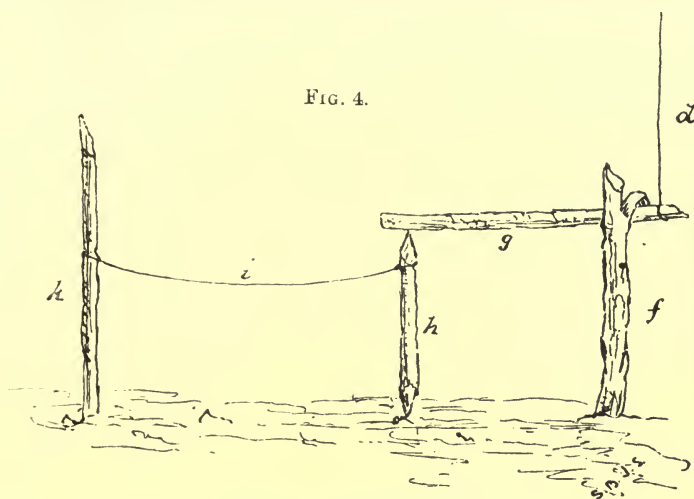
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FIG. 3.



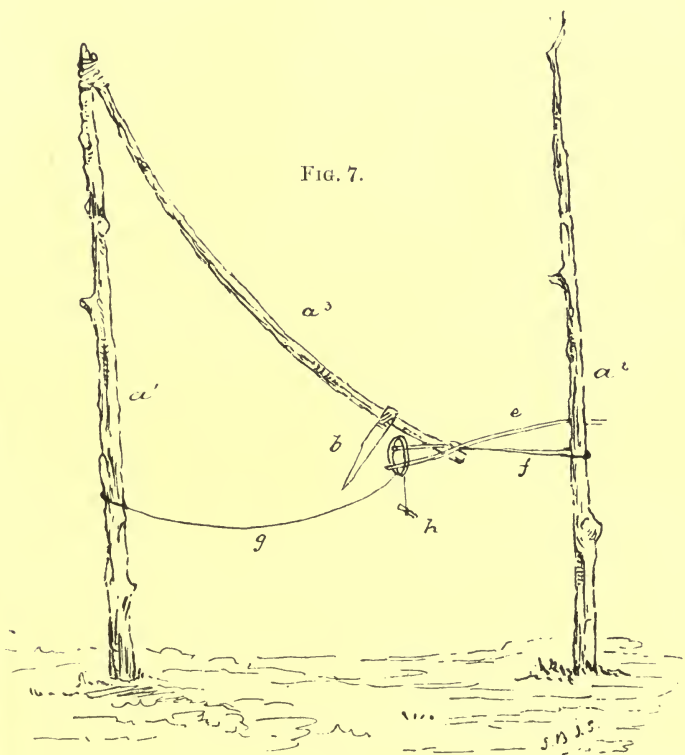
BUBUANG.

FIG. 4.



TRIGGER OF BUBUANG, SET.

FIG. 7.



PETI.

THE KELUNG.

FIG. 5.

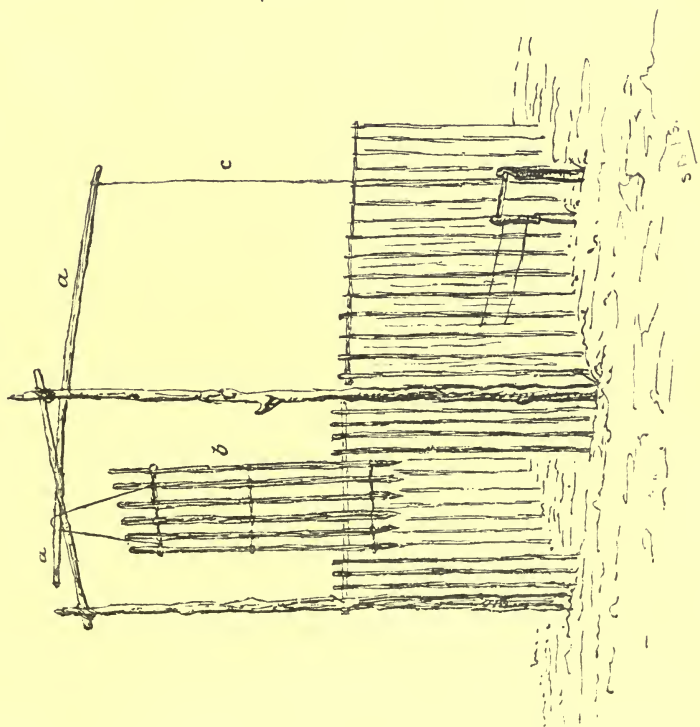


FIG. 6.

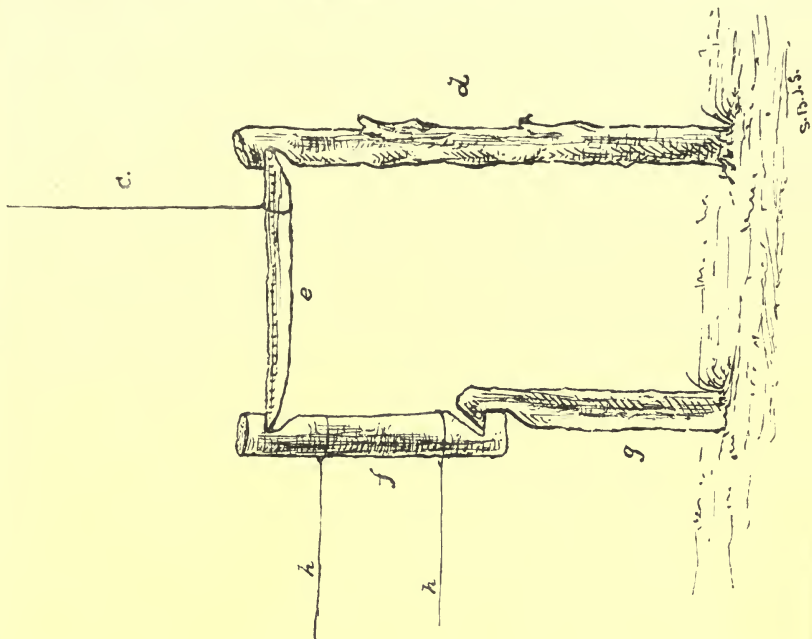
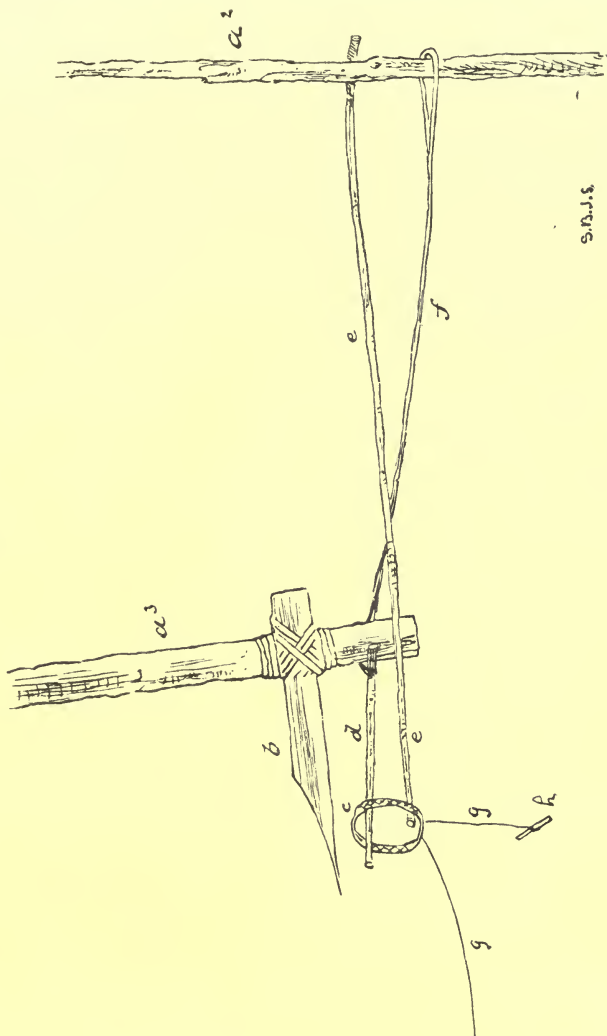
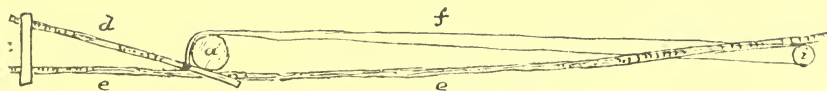


FIG. 8.



TRIGGER OF PETI, SET.

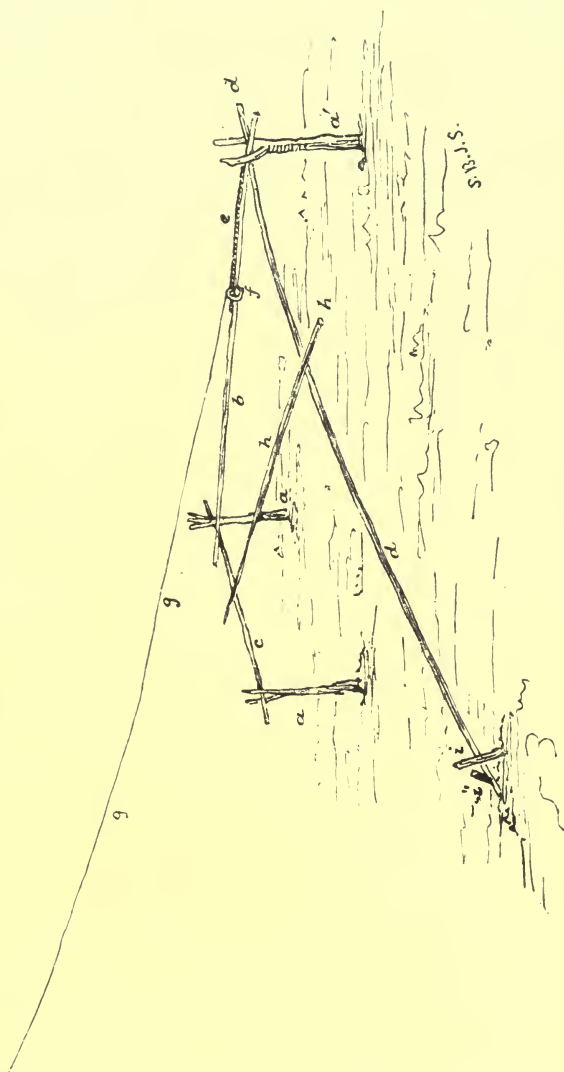
FIG. 9.



PLAN OF PETI TRIGGER, SET.

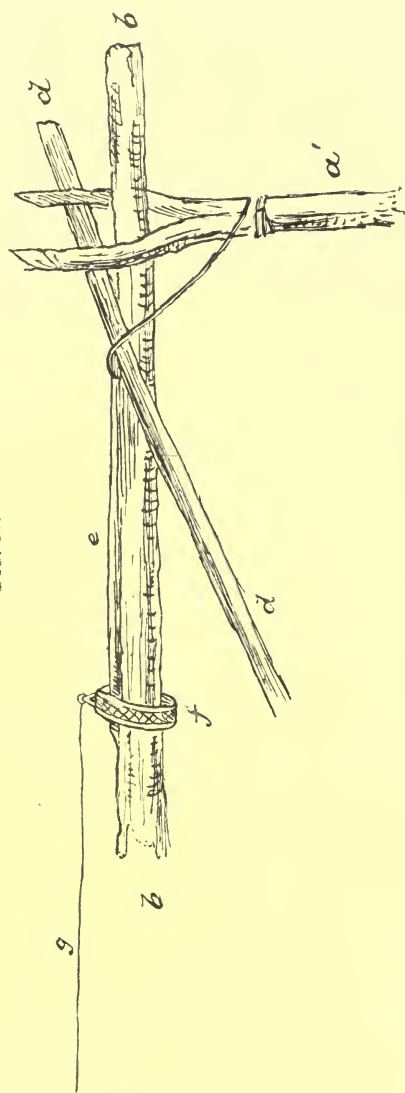
S.B.J.S.

FIG. 10.



THE PETI LANCHAR.

FIG. 11.



TRIGGER OF PETI LANCHAR, SET.



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